



Formal Session of the Board of Trustees

April 28, 2023

9:00 a.m. – 11:00 a.m.

Location: MUB Ballroom B

Public Meeting

- I. Call to Order**
Jeffrey Littmann, Chair
- II. Roll Call**
Sarah Schulte, Secretary
- III. Confirm Agenda**
Jeffrey Littmann, Chair
- IV. Opening Remarks**
 - A. Opening Remarks of the Board Chair**
Jeffrey Littmann, Chair
 - B. Opening Remarks of the University President**
Richard Koubek, President
- V. Public Comment Period**
- VI. Committee Reports**
 - A. Academic Affairs Committee**
John Bacon, Committee Chair
 - B. Audit and Finance Committee**
Andrea Dickson, Committee Chair
 - C. Leadership Committee**
Jon Jipping, Committee Chair
- VII. Consent Agenda**
 - A. Approval of Minutes**
 - B. Resignations, Retirements, and Off Payroll**
 - C. Fundraising Productivity Report**
 - D. Michigan Arts and Culture Council**
 - E. Approval of External Auditor**

VIII. Action and Discussion Items

- A. Tenure-Track Appointments Not Involving Tenure and/or Promotion**
Andrew Storer, Provost and Senior Vice President for Academic Affairs
- B. Appointments Involving Tenure and/or Promotion**
Andrew Storer, Provost and Senior Vice President for Academic Affairs
- C. Promotions**
Andrew Storer, Provost and Senior Vice President for Academic Affairs
- D. Emeritus Rank**
Andrew Storer, Provost and Senior Vice President for Academic Affairs
- E. Proposal for a Bachelor of Science Degree in Nursing**
Andrew Storer, Provost and Senior Vice President for Academic Affairs
- F. Honorary Doctorate Degree**
Andrew Storer, Provost and Senior Vice President for Academic Affairs
- G. Revisions to Board Policy 6.8 - Faculty Emeritus**
Andrew Storer, Provost and Senior Vice President for Academic Affairs
- H. Approval of FY24 General Fund Operating Budget**
Julie Seppala, Treasurer
- I. Resolution for Approval of Pre-Development Agreement**
David Reed, Interim CFO and Vice President for Administration

IX. Reports

- A. Faculty Research Presentation**
Ana Dyreson, Assistant Professor, Mechanical Engineering-Engineering Mechanics
- B. Provost Report**
Andrew Storer, Provost and Senior Vice President for Academic Affairs
- C. Undergraduate Student Government**
Mason Krause, President and Cheyenne Scott, President Emerita
- D. Graduate Student Government**
Karlee Westrem, President Elect and Ranit Karmakar, President
- E. University Senate**
Mike Mullins, President

- X. Informational Items**
 - A. Analysis of Investments**
 - B. Research & Sponsored Programs**
 - C. Advancement & Alumni Relations**
 - D. Media Coverage**
 - E. Employee Safety Statistics**
 - F. Disposal of Surplus property**
 - G. Summary of Scholarships, Awards, and Grants (Board Policy 9.3)**
- XI. Other Business**
- XII. Date for Next Formal Meeting: August 3, 2023**
- XIII. Adjourn**

AGENDA DOCUMENTS TO FOLLOW

VII. Consent Agenda

VII-A. Approval of Minutes

VII-B. Resignations, Retirements, and Off Payroll

BOARD OF TRUSTEES OFF-PAYROLL REPORT
(February 5, 2023 – April 1, 2023)

RETIRED					
Name	Class	Department	Title	Most Recent Hire Date	Term Date
Lynn Artman	FC	Civil, Environmental & Geospatial Engineering	Professor of Practice	03/23/1997	12/23/2022
Robert DeJonge	PF	Mechanical Engineering-Engineering Mechanics	Senior Research Engineer	04/04/2005	02/28/2023

OFF-PAYROLL					
Name	Class	Department	Title	Most Recent Hire Date	Term Date
Kaitlyn Roose	CF	General Athletics	Director/Head Coach of eSports	11/04/2019	03/31/2023
Suzanne Dewald	AF	Wadsworth Hall Food Service	Food Service Helper	01/09/2023	02/04/2023
Jacob McGinnis	AF	Facilities Management	Custodian	09/19/2022	02/13/2023
Judith Coon	AF	Facilities Management	Custodian	02/20/2023	03/01/2023
Rodney Stewart	AF	McNair Hall Food Service	Food Service Helper	09/06/2022	03/06/2023
Kristina Tereschuk	AF	Residential Dining	Cook	08/17/2009	03/07/2023
Melissa Johnson	AF	Facilities Management	Custodian	11/29/2004	03/11/2023
Alexandria Wood	AP	Residential Dining	Food Service Helper	08/22/2022	02/10/2023
Tamara Vencato	AP	Wadsworth Hall Food Service	Food Service Helper	02/06/2023	03/03/2023
Gerald Lucier	NF	Keweenaw Research Center	Machinist	02/17/2014	02/06/2023
Stephen Knudstrup	NF	Service Management	Help Desk Consultant	04/02/2018	02/17/2023
Aaron Sandford	PF	Admissions	Regional Admissions Manager	01/23/2023	02/08/2023
Xavier Brumwell	PF	Michigan Tech Research Institute	Research Scientist	10/04/2021	02/18/2023
Fredrick Bryce III	PF	Advanced Power Systems Research Center	Research Associate	08/08/2022	02/19/2023
Derrick Morris	PF	Financial Aid Administration	Financial Aid Manager	11/15/2021	02/25/2023
Phyllis Butler	PF	Sponsored Programs Office	Sponsored Programs Coordinator	09/19/2022	03/03/2023
Patricia Link	PF	Advancement	Assistant Director for Major Gifts	12/12/2022	03/03/2023
Larry Hermanson	PF	Facilities Management	Director, Energy Management	11/09/2015	03/31/2023
John Lenters	PF	Great Lakes Research Center	Associate Research Scientist	04/06/2020	04/01/2023
Lisa Nelson	UF	Graduate School	Office Assistant	05/17/2021	02/03/2023
Tonia Dunn	UP	Financial Services & Operations	Administrative Aide	08/22/2022	02/24/2023

VII-C. Fundraising Productivity Report

Michigan Technological University
Michigan Tech Fund

Fundraising Productivity Report

July 1, 2022 through March 31, 2023
Compared to Prior Fiscal Year

FY23

Source	YTD Total	Adjustment	FY Goal <small>(in millions)</small>	% of Goal
Individual Giving	18,457,933		21.27	87%
Corporate Giving	2,057,470		2.05	100%
Foundation & Other Org Giving	883,718		5.13	17%
Corporate Sponsored Research	14,936,289		13.33	112%
FUNDRAISING TOTAL	36,335,410	-	41.77	87%

FY22

Source	YTD Total	Adjustment	FY Goal <small>(in millions)</small>	% of Goal	FY22 Total
Individual Giving	16,205,085		20.75	78%	18,901,323
Corporate Giving	1,518,528		2	76%	2,345,521
Foundation & Other Org Giving	2,119,477		5	42%	10,657,856
Corporate Sponsored Research	11,489,248		13	88%	15,092,172
FUNDRAISING TOTAL	31,332,339	0	40.75	77%	46,996,872

<i>Amt of TOTAL from Gifts-in-Kind</i>	<i>1,105,477 (included in the source totals above)</i>
<i>Amt of Gifts/Pledges earmarked for the endowment</i>	<i>9,481,078 (included in the source totals above)</i>
<i>Amt of Gifts/Pledges earmarked for demand funds</i>	<i>8,259,190 (included in the source totals above)</i>
<i>Amt of Gifts/Pledges earmarked for unrestricted funds</i>	<i>384,259 (included in the source totals above)</i>

TOTAL PROGRESS TOWARDS FY GOAL	\$ 36,335,409.68	FY Goal	% of Goal
		41.77	87%

<i>Realized Planned Gifts - All</i>	<i>1,640,362 (NOT included in the source totals above)</i>
<i>Amt of Realized Planned Gifts earmarked for the endowment</i>	<i>628,142</i>

<i>Realized Pledges</i>	<i>1,747,333 (NOT included in the source totals above)</i>
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Notes:

- The Adjustment totals include changes to gift records (eg. gift received date, amount, or other donor driven gift modifications)
- The FUNDRAISING TOTAL includes outright gifts, as well as new pledge and planned gift commitments, made in the specified date range.
- Realized planned gifts and realized pledges are not included in the FUNDRAISING TOTAL.
- An individual's gifts made through a donor-advised fund are counted under the individual.
- An individual's gifts made through another source (i.e. family foundation or closely held business) are counted under the source entity.
- The FUNDRAISING TOTAL for fiscal years 2020 and later include gifts-in-kind under other sources (Major Gifts, Annual Giving, etc).

VIII-P. MICHIGAN ARTS AND CULTURE COUNCIL

The Rozsa Center for the Performing Arts is preparing a proposal for submission to the Michigan Arts and Culture Council. The funds requested in this proposal will support the costs associated with artist fees for the annual Presenting Series that will include the following:

- DANCER, featuring Woodland Sky Dance and Grand Rapids Ballet (September 15-16, 2023)
- Guerilla Opera's production of **Thrilling Adventures of Lovelace and Babbage** (October 12-15)
- Comedian **Charlie Berens** (November 10, 2023)
- **Detroit Youth Choir's** Holiday Concert (December 2, 2023)
- Flip Fabrique's production of **BLIZZARD** (Winter Carnival Weekend, February 9-10, 2024)
- The Lincoln Center Theater Production of Learner & Loewe's **My Fair Lady** (March 7, 2024)
- Van Evera Distinguished Lecture Series speaker **Ryan O'Connell** (TBD spring 2024)

The amount of the grant request is \$30,000.

The Michigan Arts and Culture Council requires that proposals submitted to them for funding be authorized by the Board of Trustees.

RECOMMENDATION: That the Board of Trustees endorse the proposal from the Rozsa Center for the Performing Arts for submission to the Michigan Arts and Culture Council.

VII-E APPROVAL OF EXTERNAL AUDITOR

The University's external auditors (certified public accountants) perform interim audit work prior to the close of our June 30 fiscal year; therefore, it is desirable that they be appointed prior to the end of the fiscal year.

RECOMMENDATION: That the Board of Trustees authorizes the Treasurer to engage the certified public accounting firm Plante Moran, PLLC to conduct the following audits for the fiscal year ending June 30, 2023:

1. The annual examination of the University's Financial Statements and Supplemental Information (all funds).
2. The annual examination, in accordance with Uniform Guidance, of federal awards and federal student financial assistance programs, including Pell Grants, Education Opportunity Grants, Perkins Loans, College Work Study Programs, and Direct Student Loans.
3. The financial audit of the University's intercollegiate athletics programs, as mandated by the National Collegiate Athletics Association.
4. The subsequent event review procedure for the State of Michigan Annual Comprehensive Financial Report.

VIII- Action and Discussion Items

VIII-A. TENURE-TRACK APPOINTMENTS NOT INVOLVING TENURE AND/OR PROMOTION

The departments, with support from the respective colleges, have requested that the individuals identified in this section be granted the indicated appointments. The administration supports the recommendations of the departments and colleges regarding these appointments.

RECOMMENDATION: It is recommended that the Board of Trustees approves the appointments listed in this section. The appointments do not include tenure or promotion.



Office of the Provost and
Senior Vice President for Academic Affairs

Phone: (906) 487-2440
Fax: (906) 487-2935

TO: Richard Koubek, President

FROM: Andrew Storer, Interim Provost and Senior Vice President for Academic Affairs 

DATE: March 28, 2023

SUBJECT: Tenure-Track Faculty Appointment Recommendations

In accordance with Board of Trustees Policy 2.2, Duties and Powers of the President, I am submitting the following faculty appointment recommendations for your review and subsequent approval by the Board of Trustees at their meeting on April 28, 2023.

**Appointment without Tenure for Two Years
Effective August 14, 2023**

Jenny Apriesnig	Assistant Professor	College of Business
Elham Asgari	Assistant Professor	College of Business
Laura Connolly	Assistant Professor	College of Business
Xiaoyong "Brian" Yuan	Assistant Professor	Applied Computing
Weihua Zhou	Assistant Professor	Applied Computing
Xinyu Lei	Assistant Professor	Computer Science
Jianhui Yue	Assistant Professor	Computer Science
Roger Guillory	Assistant Professor	Biomedical Engineering
Sangyoon Han	Assistant Professor	Biomedical Engineering
Chunxiu Yu	Assistant Professor	Biomedical Engineering
Yixin Liu	Assistant Professor	Chemical Engineering
Ricardo Eiris Pereira	Assistant Professor	Civil, Environmental & Geospatial Eng.
Hongyu An	Assistant Professor	Electrical & Computer Engineering
Lan Zhang	Assistant Professor	Electrical & Computer Engineering
Xin Xi	Assistant Professor	Geological & Mining Eng. & Sciences
Jung Yun Bae	Assistant Professor	Mechanical Eng. – Eng. Mechanics
Ana Dyreson	Assistant Professor	Mechanical Eng. – Eng. Mechanics
Susanta Ghosh	Assistant Professor	Mechanical Eng. – Eng. Mechanics
Vijaya Venkata Malladi	Assistant Professor	Mechanical Eng. – Eng. Mechanics
Julia Burton	Assistant Professor	College of Forest Resources & Env. Sci.
Valoree Gagnon	Assistant Professor	College of Forest Resources & Env. Sci.
Steven Voelker	Assistant Professor	College of Forest Resources & Env. Sci.
Paul Goetsch	Assistant Professor	Biological Sciences
Robert Larson	Assistant Professor	Biological Sciences
Jill Olin	Assistant Professor	Biological Sciences

Oren Abeles	Assistant Professor	Humanities
Carolyn Duncan	Assistant Professor	Kinesiology & Integrative Physiology
Byung-Jun Kim	Assistant Professor	Mathematical Sciences
Qian Zhang	Assistant Professor	Mathematical Sciences
Sara Gosses	Assistant Professor	Visual & Performing Arts

**Appointment without Tenure for One Year
Effective August 14, 2023**

Jun Dai	Assistant Professor	College of Business
Xin Li	Assistant Professor	College of Business
Hoda Hatoum	Assistant Professor	Biomedical Engineering
Zequn Wang	Assistant Professor	Mechanical Eng. – Eng. Mechanics
Sarah Bell	Assistant Professor	Humanities

Formal notification of these decisions will be sent to each individual Monday, May 9, 2022.

APPROVED:



Richard Koubek, President

3/31/23

Date

VIII-B. APPOINTMENTS INVOLVING TENURE AND/OR PROMOTION

The policy for granting tenure and/or promotion to faculty members requires that the process begin with deliberations in the candidate's home unit and proceed through additional review at multiple levels. Recommendations are reviewed by the provost, and the provost makes a recommendation to the president of the University. The president has accepted the provost's recommendation regarding tenure and/or promotion for the candidates listed in this section.

RECOMMENDATION: It is recommended that the Board of Trustees approves the appointments involving tenure and/or promotion listed in this section.



Office of the Provost and
Senior Vice President for Academic Affairs

Phone: (906) 487-2440
Fax: (906) 487-2935

TO: Richard Koubek, President

FROM: Andrew Storer, Provost & Senior Vice President for Academic Affairs 

DATE: March 28, 2023

SUBJECT: Appointment with Tenure Recommendation or Tenure and Promotion Recommendations

In accordance with Board of Trustees Policy 6.4, Academic Tenure and Promotion, the following faculty members have been recommended for appointment and/or promotion with tenure. I have reviewed and support these recommendations and request that the Board of Trustees be asked to approve them at their April 28, 2023 meeting. If approved, the promotions will be effective August 14, 2023.

Promotion from Assistant Professor without Tenure to Associate Professor with Tenure

Smitha Rao Hatti	Biomedical Engineering
Hassan Masoud	Mechanical Engineering – Engineering Mechanics
Trisha Sain	Mechanical Engineering – Engineering Mechanics

Xiaohu "Mark" Tang	Biological Sciences
Kathryn Perrine	Chemistry
Shan Zhou	Social Sciences
Adam Meckler	Visual and Performing Arts

Promotion from Associate Professor without Tenure to Associate Professor with Tenure

Iakov "Yakov" Nekritch	Computer Science
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APPROVED:

Richard Koubek, President

3/31/23

Date

INFORMATION SHEET FOR BOARD OF TRUSTEES
SMITHA RAO HATTI
Michigan Technological University

Smitha Rao Hatti, who is currently an assistant professor of biomedical engineering without tenure in the Department of Biomedical Engineering in the College of Engineering, is being considered for promotion to associate professor of biomedical engineering with tenure in the Department of Biomedical Engineering in the College of Engineering.

Academic Degrees:

Ph.D.	2009	The University of Texas at Arlington, Arlington, TX
M.S.	2004	The University of Texas at Arlington, Arlington, TX
B.S.	2000	Bangalore Institute of Technology, Bangalore University, Bangalore, India

Professional Record:

2015 – present	Assistant Professor (without tenure), Department of Biomedical Engineering, Michigan Technological University
2012 – 2015	Faculty Associate – Research and Lecturer, Department of Electrical and Computer Engineering, The University of Texas at Arlington, Arlington, TX
2010 – 2012	Principal Scientist, Med-Worx LLC, Grand Prairie, TX
2010 – 2012	Adjunct Faculty, Department of Electrical and Computer Engineering, The University of Texas at Arlington, Arlington, TX
2003 – 2009	Graduate Research Associate, Department of Electrical and Computer Engineering, The University of Texas at Arlington, Arlington, TX

Summary of Accomplishments:

- Teaching

Smitha Rao Hatti has been teaching at Michigan Tech since the Spring of 2016. She teaches BE2100 Freshman Seminar (Fall/~100 students), BE3700 Biomedical Instrumentation (Spring, 50+students), BE4670/5670 Micro- and Nano technology (Fall, 30+ students), BE4900 Design Fundamentals (Even Spring, 50+ students). Her student evaluations are above 4.0/5.0, including the semester with the shift to online teaching due to the pandemic. She is frequently placed among the top 10% to receive high assessments. She has been recognized for her teaching excellence through various awards (Dean's teaching showcase, CTL Instructional Award, Finalist for Distinguished Teaching, Included in the Academy of Teaching Excellence). She has enrolled in courses through CTL to improve the accessibility of the course content (ETOM & CACC), incorporate inclusivity in class (I-STEM), and make the online course materials easy to use across different platforms. For the first-year students, she has developed a curriculum for the seminar class that includes workshops, presentations, an introduction to resources on campus, and discussions focused on shared experiences, all geared towards improving the student experience and helping with retention. She introduces real-world examples and brings models or actual samples for the students to see and learn. She teaches the students Micro- and Nanotechnology-based recent medical devices in her Fall class. She has continuously improved the courses by refreshing the course content and identifying textbooks with online supporting content. She effectively uses technological resources such as Canvas, iClicker, and Zoom to increase in-class participation and promote problem-solving.

- Research/Scholarly Activity

Smitha Rao Hatti has focused on building multidisciplinary research partnerships. The range of funding sources supporting her work represents the vital role her research plays in interdisciplinary research. The various publications from collaborative work further highlight her ability to integrate her expertise, take a leading role, and nurture collaborations. In addition, she has established research collaborations within Tech, the Keweenaw Bay Indian Community, and other Institutions. Additionally, she has served as PI and Co-I on federally awarded grants, recruited top students, and continues to engage in university-wide research efforts. The impact of her scholarly work is indicated by an h-index of 19 and an i10-index of 31. Since joining Michigan Tech, she has published 11 journal papers, 34 peer-reviewed conference abstracts, posters, extended abstracts, and one book chapter. Since joining Michigan Tech, she has been awarded several internal (\$33,000) and external grants (\$1.9M) as PI and Co-PI. Her ongoing awards include an NSF REU (PI, \$358,920), NIH R15 (PI, \$400,343), and HUD LTS (Co-I, \$699,916). She currently has three grant proposals under review. In addition, she has graduated two doctoral students, three MS thesis students, and four accelerated MS students.

- Service

Smitha Rao Hatti has served on the departmental graduate program committee and as the faculty advisor of BMES since 2015. In the Fall of 2021, she helped launch the BME Peer Mentoring Program as a faculty advisor. The program supports first-year students navigating college life. At the department level, she is part of the strategic planning committee. At the university level, she is currently a department alternate at the University senate and a member of the Advance Advocates and Allies Advisory Board (A3B). At the national level, she serves as the representative for the department on the Council on Diversity in the Biomedical Engineering Society. She represents Michigan Tech as the Session chair for IEEE Sensors (2022-2024), area editor of IEEE OJEMB (2022-2025), special topics collection JOVE Methods, and the editorial board of Frontiers in Bioengineering and Biotechnology and Fibers. In addition, she has served on 24 doctoral and 8 MS committees.

- Recent and Significant Publications/Exhibitions/Performances/Etc. (*undergraduate student)

- "In-vitro cell culture model to determine toxic effects of soil Arsenic due to direct dermal exposure," Manas Warke, Madeline English*, Laura De Marchi*, Rohan Deep Sarkar, Srinivas Kannan, Rupali Datta, Smitha Rao, *Environmental Technology & Innovation*, Vol 28, Pg. 102949, 2022, <https://doi.org/10.1016/j.eti.2022.102949>.
- "Quantitative Analysis of the Impact of Disorder on the Structural and Electrical Properties of Polymer Fibers," Robert Makin, Samerender Nagam Hanumantharao, Smitha Rao and Steve Durbin, *MRS Advances*, November 2022, <https://doi.org/10.1557/s43580-022-00368-2>
- "Antimicrobial mechanisms of Biomaterials: From macro to nano," Shounak Roy, Sanchita Sarkhel, Deepali Bisht, Samerender Nagam Hanumantharao, Smitha Rao and Amit Jaiswal, *Biomaterials Science*, 2022, <http://dx.doi.org/10.1039/D2BM00472K>
- "Engineered three-dimensional scaffolds modulating fate of breast cancer cells using stiffness and morphology related cell adhesion," Samerender Nagam Hanumantharao, Carolyn Que, Brennan Vogl*, Smitha Rao, in *IEEE Open Journal of Engineering in Medicine and Biology*, vol. 1, pp. 41-48, 2020, [doi: 10.1109/OJEMB.2020.2965084](https://doi.org/10.1109/OJEMB.2020.2965084). Listed among "[Most impactful papers](#)".
- "Establishing nitrite to nitrate ratios in the clinical wound samples of subjects with and without diabetes." Cook E. K., Kennedy A. M., Kwesiga M. P., Gwaltney C. S., Liston W. W., Rao S., Frost M.C. April 8, 2022; Phoenix, AZ. **Best Poster**
- "[Customizable Tissue Engineering Patches for Accelerated Wound Healing](#)" was among the top 100 finalists and [one of six finalists in the Medical Device](#) category of the Create the Future Design Contest by Tech Briefs.

**INFORMATION SHEET FOR BOARD OF TRUSTEES
HASSAN MASOUD
Michigan Technological University**

Hassan Masoud, who is currently an assistant professor of mechanical engineering without tenure in the Department of Mechanical Engineering-Engineering Mechanics in the College of Engineering, is being considered for promotion to associate professor of mechanical engineering with tenure in the Department of Mechanical Engineering-Engineering Mechanics in the College of Engineering.

Academic Degrees:

Ph.D.	2012	Georgia Institute of Technology, Atlanta, GA
M.S.	2009	State University of New York at Buffalo, Buffalo, NY
B.S.	2006	Sharif University of Technology, Tehran, Iran

Professional Record:

2017 – present	Assistant Professor (without tenure), Department of Mechanical Engineering-Engineering Mechanics, Michigan Technological University
2015 – 2017	Assistant Professor (without tenure), Department of Mechanical Engineering, University of Nevada, Reno, NV
2012 – 2015	Post-Doctoral Fellow, jointly at Courant Institute of Mathematical Sciences, New York University, New York, NY & Department of Mechanical and Aerospace Engineering, Princeton University, Princeton, NJ
2009 – 2012	Graduate Research Assistant, School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA
2007 – 2009	Graduate Teaching Assistant, Department of Mechanical and Aerospace Engineering, State University of New York at Buffalo, Buffalo, NY

Summary of Accomplishments:

- Teaching

Dr. Masoud has taught undergraduate and graduate courses in heat transfer, an undergraduate course in model-based design, an undergraduate course in engineering mathematics, and served as a faculty advisor of the SENSE (Strategic Education through Naval Systems Experiences) enterprise. As a testament to his passion for teaching, he was recognized by the Dean of the College of Engineering for his exceptional teaching evaluations. Dr. Masoud has incorporated innovative approaches in teaching. For instance, in his Advanced Heat Transfer course, he assigned students to create short YouTube videos demonstrating heat transfer phenomena in cooking as their final course project. Those videos were showcased on the Facebook page of his department. He also has a track record of using flipped classroom strategy in his teaching.

- Research/Scholarly Activity

Dr. Masoud has broad research interests that range from swarm robotics and wave energy conversion to evaporative self-assembly of colloidal particles and 3D printing of frothy bio-inks. Fluid dynamics, transport phenomena, collective effects, and fluid-structure interactions are at the core of the phenomena that he has studied. Dr. Masoud has effectively employed theoretical analyses and large- and medium-scale numerical simulations in his investigations. In recent years, he has built an experimental laboratory from the ground up and equipped it with a state-of-the-art particle tracking velocimetry setup

capable of time-resolved, volumetric flow measurements. Since the establishment of the lab, experimentation has been added to simulation and theory in his research toolbox. Also, when deemed beneficial, he has coupled these conventional approaches with the tools of machine learning and artificial intelligence to gain new insights that would otherwise remain hidden. Dr. Masoud's research is aligned well with the strategic plan of Michigan Tech in the areas of autonomous systems, deep learning modeling in inverse problems, diversity in research and education, and STEM workforce development, as part of four of its current "Tech Forward" initiatives in Autonomous and Intelligent Systems, Data Revolution and Sensing, Diversity and Inclusion, Education for the 21st Century. This alignment means that Dr. Masoud's work is meaningfully meshed with the overall direction of Michigan Tech.

Dr. Masoud's research to date has been supported externally by the National Science Foundation, Air Force Office of Scientific Research (through summer faculty fellowship program), Michigan Space Grant Consortium (through graduate student fellowship), and U.S.--Pakistan Knowledge Corridor (through Ph.D. scholarship program). In particular, very recently, he was granted an NSF CAREER Award for a project entitled "Collective Hydrodynamics of Robotic Swimmers and Surfers at High Reynolds Numbers". He has also received several internal grants in support of his research efforts.

During his time as an Assistant Professor, Dr. Masoud mentored a post-doctoral fellow, graduated four Ph.D. students, and supervised four M.S. and two undergraduate students. Within this period, he published 19 journal papers, one book review, and one editorial piece. He has a total of 38 publications, with three more papers currently under review. According to Google Scholar, Dr. Masoud's papers have been cited a total of 1136 times to date, with an h-index of 19 and i10-index of 22.

- Service

In parallel with research and teaching, Dr. Masoud has been an active member of the fluid dynamics community. His activities have included, among others: (i) serving as the co-chair of the APS-DFD's External Affairs Committee; (ii) organizing symposia and chairing sessions at conferences such as APS-DFD, SES, and USNCTAM; and (iii) participating in multiple proposal review panels. Additionally, from 2017 to 2019, he served as the Associate Editor of the European Journal of Computational Mechanics. At Michigan Tech, Dr. Masoud has served as a member of several departmental committees, as a faculty advisor for Tau Beta Pi, and as a faculty host for the MiCUP scholars and STEM internship programs.

- Recent and Significant Publications/Exhibitions/Performances/Etc.

- A remotely controlled Marangoni surfer, M. L. Timm, S. Jafari Kang, J. P. Rothstein, and **H. Masoud**, *Bioinspiration & Biomimetics* 16, 066014 (2021)
- Collective sensitivity of artificial hair sensors to flow direction, E. Dehdashti, G. W. Reich, and **H. Masoud**, *AIAA Journal* 59, 1135-1141 (2021)
- Evaporation of multiple droplets, **H. Masoud**, P. D. Howell, and H. A. Stone, *Journal of Fluid Mechanics (Rapids)* 927, R4 (2021)
- Forward, reverse, and no motion of Marangoni surfers under confinement, S. Jafari Kang, S. Sur, J. P. Rothstein, and **H. Masoud**, *Physical Review Fluids* 5, 084004 (2020)
- The reciprocal theorem in fluid dynamics and transport phenomena, **H. Masoud** and H. A. Stone, *Journal of Fluid Mechanics* 879, P1 (2019)
- Optimal viscous damping of vibrating porous cylinders, S. Jafari Kang, E. Dehdashti, V. Vandadi, and **H. Masoud**, *Journal of Fluid Mechanics* 874, 339-358 (2019)
- Evaporation of a sessile droplet on a slope, M. L. Timm, E. Dehdashti, A. Jarrahi Darban, and **H. Masoud**, *Scientific Reports* 9, 19803 (2019)
- Reverse Marangoni surfing, V. Vandadi, S. Jafari Kang, and **H. Masoud**, *Journal of Fluid Mechanics* 811, 612-621 (2017)
- Alternative mechanism for coffee-ring deposition based on active role of free surface, S. Jafari Kang, V. Vandadi, J. D. Felske, and **H. Masoud**, *Physical Review E* 94, 063104 (2016)

INFORMATION SHEET FOR BOARD OF TRUSTEES

Trisha Sain

Michigan Technological University

Trisha Sain, who is currently an assistant professor without tenure in the Department of Mechanical Engineering and Engineering Mechanics in the College of Engineering, is being considered for promotion to associate professor with tenure in the Department of Mechanical Engineering and Engineering Mechanics in the College of Engineering.

Academic Degrees:

Ph.D.	2008	Indian Institute of Science, Bangalore, India
M.S.	2003	Indian Institute of Science, Bangalore, India
B.S.	2001	Jadavpur University, Kolkata, India

Professional Record:

2016 – present	Assistant Professor (without tenure), Department of Mechanical Engineering-Engineering Mechanics, Michigan Technological University
2013 – 2016	Assistant Professor, Mechanical Engg., North Carolina A & T State University
2011 – 2013	Post-Doctoral Fellow, University of Michigan, Ann Arbor.
2009 – 2011	Post-Doctoral Fellow, International Center of Numerical Methods in Engg. Barcelona, Spain

Summary of Accomplishments:

Teaching

Since starting at Michigan Technological University, Dr. Sain has been teaching two graduate courses (MEEM5110--Continuum Mechanics and MEEM6130--Fracture Mechanics) where her student evaluations are consistently above 4. These two courses are considered advanced level courses in the Solid Mechanics area. She emphasizes the importance of Math and Physics in her courses (which are the foundations of these two courses) in a graduate engineer's skills.

In addition, Dr. Sain has been teaching several UG courses in the Dept. (MEEM4170--Failure in Mechanics of Materials; MEEM4405--Finite Element Methods, MEEM2150--Mechanics of Materials). In the UG courses as well, the student evaluations are near and around 4.0 (most of the time). In the UG courses her focus is on explaining the subject matters with various engineering examples. As she teaches some of the important technical elective courses in the UG level her aim is to make the students prepared for their future places in jobs/academia. Hence, she tries to link various parts of the subject matter with field engineering or advanced engineering knowledge. From her perspective, too much use of technology in the classrooms could affect the student's concentration. As a teacher she pays attention to human interactions in the classrooms. Her experience is that the students like a professor who is lively, interactive and jovial. "Deep" learning too becomes easy when the personal connection is being made. Being that said, she believes, to be a "good" teacher who can inspire his/her students, one needs to continue to improve her skills. Hence she will continue to learn to be a better teacher. In the near future, Dr. Sain plans to offer new courses in the mechanics of materials area, as per the Dept. needs.

Research/Scholarly Activity

Dr. Sain has grown as an independent researcher in the area of computational modeling of material. Her research group is named "**Laboratory of Mechanics & Modeling of Advanced Materials**"- where the prime focus is to study the materials' behavior (constitutive response, damage, and fracture), under complex loading scenarios. **4 PhD** students and **1 MS student** have been graduated to date; with 1 of them working in Mondelez International as a senior modeling engineer; 1 working at Corning Science & Technology, 1 is currently pursuing her post-doc at Brown University, and the 4th is one working for Herman Miller. The MS student is a full time employee at Altair Engineering.

The research performed by Dr. Sain's research group on performance degradation of polymer composites has been supported largely by the Department of Defense. Dr. Sain received a **single-PI grant from AFOSR (\$401,530, September 2020-2023)**. In total, **she has received \$547,361 in research funding from various external and internal grants as a PI & Co-PI**. She has been a co-PI for the NASA-Space Technology Research Institute (US-COMP) grant that is worth \$15 million.

During the last 6 years with MTU, Dr. Sain has published 12 journal papers in various reputed journals in the mechanics of materials and computational mechanics area, with a total number of 27. She has a publication in the prestigious NATURE (IF-49.962) journal. Her research works have been cited 716 times with a h-index of 15 (Source: Google scholar).

In the near future, Dr. Sain intends to pursue her research in three major fields: 1) modeling of complex physics controlling the structure/property relationships for additively manufactured composites. This is aligned with MTU's thrust area on "advanced manufacturing". 2) Understanding the biomedical implants' behavior from the mechanics' perspective- aligned with MTU's health research thrust area. 3) Predictive modeling of recyclable polymer's behavior such as vitrimers toward sustainable material's design.

Service

During her period at MTU, Dr. Sain has been diligent in performing the services assigned by the ME-EM department. She has served as a member of the department's curriculum committee, as a faculty search committee member, and as a library liaison representative. In addition, she has been actively participating as a Summer Youth Program Mentor for the WIE and ESP programs in our department.

Dr. Sain has been active performing external service duties such as organizing sessions in the premier conference of her area, serving as a journal reviewer consistently and participating in NSF and Army proposal review panels. She will continue to do all these activities as before in the future.

Recent and Significant Publications/Exhibitions/Performances/Etc.

[Link](https://www.sciencedirect.com/science/article/pii/S0022509621000478) to paper 1: <https://www.sciencedirect.com/science/article/pii/S0022509621000478>

[Link](https://www.sciencedirect.com/science/article/pii/S0022509619308270) to paper 2: <https://www.sciencedirect.com/science/article/pii/S0022509619308270>

[Link](https://www.sciencedirect.com/science/article/pii/S0022509617311328) to paper 3: <https://www.sciencedirect.com/science/article/pii/S0022509617311328>

[Link](https://www.sciencedirect.com/science/article/pii/S002076832100442X) to paper 4: <https://www.sciencedirect.com/science/article/pii/S002076832100442X>

INFORMATION SHEET FOR BOARD OF TRUSTEES

Xiaohu (Mark) Tang
Michigan Technological University

Xiaohu (Mark), Tang, who is currently an assistant professor of cancer biology without tenure in the Department of Biological Sciences in the College of Sciences and Arts, is being considered for promotion to associate professor of cancer biology with tenure in the Department of Biological Sciences in the College of Sciences and Arts.

Academic Degrees:

Ph.D.	2006	The Weizmann Institute of Science, Rehovot, Israel
M.S.	2001	The Weizmann Institute of Science, Rehovot, Israel
B.S.	1994	The University of Science and Technology, Beijing, China

Professional Record:

2016 – present	Assistant Professor (without tenure), Department of Biological Sciences, Michigan Technological University
2015 – 2016	Research Assistant Professor, University of North Carolina at Chapel Hill, NC
2013 – 2015	Research Scholar, Duke University, Durham, NC
2009 – 2013	Postdoctoral Fellow, Duke University, Durham NC
2008 – 2009	Postdoctoral Fellow, Brigham and Women’s Hospital, Harvard University, Boston, MA
2007 – 2008	Postdoctoral Associate, University of Kentucky, Lexington, KY
2000 – 2006	Graduate Research Assistant, The Weizmann Institute of Science, Rehovot, Israel

Summary of Accomplishments:

• Teaching

Over the past six years, Dr. Tang has taught six courses besides laboratory technique courses, all of which are senior and graduate levels of courses. Two courses (Molecular Biology and Senior Research Capstone Experience) are required courses for some undergraduate majors. He built and prepared materials for one new selective course Epigenetics and updated and reorganized all other course materials. Dr. Tang followed his teaching philosophy of learning and application are both essential in Biology and implemented innovations over past years, including fully accessible Canvas instruction slides and related materials, Canvas quizzes practice to increase content retention, Canvas assignment with Q/A, iClicker questions and discussion in class to increase student engagement. He responded the COVID challenges and made quick transitions on instruction from in-person to remote virtual format during last two years. Over last three years, Dr. Tang has received moderate student teaching evaluations (3.94 ± 0.52) (low = 1 and high = 5). He follows his commitment and makes improvement continuously with new strategies based on student feedback, peer faculty comments, ideas and advice from workshops held by MTU Center for Teaching & Learning, including motivating student interests with concrete research and application stories, allowing optional course materials to meet background gaps of students, and providing more class practice, discussion, and review to increase content retention.

• Research/Scholarly Activity

Dr. Tang’s research focuses on studying cancer metabolic deregulations and developing novel therapeutics to treat cancer patient precisely and effectively. He leverages his prior training and

experiences in cancer biology, omics, HTS drug screening, and bioinformatics to develop his current research and initiate new research to broad funding opportunities. He has received about 0.5M\$ of research funding as PI or co-PI from the National Cancer institute (Exploiting synthetic lethality of cysteine addiction to target breast cancer) and the Portage Health Foundation Research Excellence Fund of Michigan Tech and continue to seek external funding supports for research conducting and student training. Dr. Tang has established his research reputation in his research field as invited editors or reviewers in many journals. He has a strong record of publication with 24 peer-reviewed journal articles as author or co-author, of which 11 are on research conducted while at Michigan Technological University. He has presented his research at national and international conferences, and in invited talks. In last six years, he has mentored three PhD students, two MSc students, eight undergraduates. He worked hard to mitigate COVID impacts on research progress, comfort and lower negative sentiment on students during the pandemic. Two PhD students and one MSc student in his lab have successfully graduated with publications or manuscripts under review.

- Service

Dr. Tang is serving as an associate Editor for Nature/BMC Cancer and review editor for Frontiers in Cell and Developmental Biology, Health & Medical Informatics Open Access, and SCIO Biotechnology. He has edited and reviewed various professional journal articles in his field. He is a member of the American Association for Cancer Research, the Cancer Epigenetics Society, and the Epigenetics Society. Dr. Tang serves as a member of the Biological Sciences graduate program committee (2018-present). Besides regularly engage in program governance and application evaluation, he coordinated with the committee to improve graduate handbook and web description, update graduate study assessment plan, and prepare annual assessment reports. He also served on the department strategic plan committee to discuss and update the Department strategy plan (2018, 2020). He has organized the Department of Biological Sciences Graduate Seminar Series virtually during the COVID pandemic (2021). Dr. Tang serves on various M.Sc. and Ph.D. student advisory committees. He also took part in the department hiring processes and was a member of the faculty search committee for a tenure-track faculty position in the Department of Biological Sciences. He frequently reviewed scholar and student grants for the University Research Excellence Award and various student fellowship programs and volunteered to interview potential students as part of the Leading Scholar Program.

- Recent and Significant Publications/Exhibitions/Performances/Etc.

- Alothaim, T., Charbonneau, M., **Tang, X.** Recurrent triple-negative breast cancer from cysteine deprivation loses tumorigenicity via downregulation of the CST4 signaling. (*In peer-review*).
- Amer, A., Alothaim, T., **Tang, X.** Selenoprotein Sepp1 regulates Cysteine Dependence in Pancreatic Cancer. (*In Revision*).
- Wang Z., Mohan R., Chen X., Matson K., Waugh J., Mao Y., Zhang S., Li W., **Tang X.**, Satin S. L., Tang X. Transgenic overexpression of microRNA-30d in pancreatic beta-cells progressively regulates beta-cell function and identity. *Scientific Reports (2022) 12(1), 1-12*
- Alothaim, T., Charbonneau, M., **Tang, X.** HDAC6 inhibitors sensitize non-mesenchymal triple-negative breast cancer cells to cysteine deprivation. *Scientific Reports (2021) 11(1), 10956*.
- Coleman M.F., Liu K.A., Pfeil A.J., Etigunta, **Tang X.**, Fabela S. Lashinger L.M., Cui Z., Hursting S.D. β -Hydroxy- β -Methylbutyrate Supplementation Promotes Antitumor Immunity in an Obesity Responsive Mouse Model of Pancreatic Ductal Adenocarcinoma. *Cancers (2021) 13(24), 6359*
- **Tang, X.**, Ding, C.K., Wu, J., Sjol, J., Wardell, S., George, D., McDonnell, D.P., Hsu, D.S., Chang, J.T., Chi, J.T. Cystine addiction of triple negative breast cancer associated with EMT augmented death signaling. *Oncogene (2017) 36(30), 4235*.

INFORMATION SHEET FOR BOARD OF TRUSTEES

Kathryn A. Perrine
Michigan Technological University

Kathryn A. Perrine, who is currently an assistant professor of Chemistry without tenure in the Department of Chemistry in the College of Sciences and Arts, is being considered for promotion to associate professor of Chemistry with tenure in the Department of Chemistry in the College of Sciences and Arts.

Academic Degrees:

Ph.D.	2011	University of Delaware, Newark, DE
B.S.	2004	University of South Carolina, Columbia, SC

Professional Record:

2015 – present	Assistant Professor (without tenure), Department of Chemistry, Michigan Technological University
2014-2015	Joint Center for Artificial Photosynthesis, Department of Energy, California Institute of Technology, Pasadena, CA
2011-2015	Post-Doctoral Scholar, University of California Irvine, Irvine, CA
2007-2010	Graduate Research Assistant, Department of Chemistry and Biochemistry, University of Delaware, Newark, DE
2005-2007	Graduate Teaching Assistant, Department of Chemistry and Biochemistry, University of Delaware, Newark, DE
2003-2005	Undergraduate Research Assistant, Department of Chemistry and Biochemistry, University of South Carolina, Columbia, SC

Summary of Accomplishments:

• Teaching

Dr. Perrine has taught 4 undergraduate and 2 graduate courses over her academic career, utilizing innovative, blended and active learning strategies. She has developed and redesigned new labs for CH3511: Physical Chemistry I and contributed to experimental labs for CH3521: Physical Chemistry II courses, developing 5 new labs and redesigning 3 of the existing labs. Of those, one was published in an education journal utilizing the new atomic force microscope (AFM) instrument. Her average scores for CH3511 are 4.09/5.00 over 2 years, teaching 103+ students. Dr. Perrine has designed a new graduate-level course CH5665/MSE5665: Surface and Interface Science, teaching 23 students across science and engineering disciplines, advancing interdisciplinary scholarship, with an average score of (4.35/5.00) over 3 semesters. This course supports the surface science and materials chemistry capabilities across campus, teaching students proper surface analysis, including experiments on the X-ray photoelectron spectroscopy (XPS) instrument she brought to the university.

Research/Scholarly Activity

Dr. Perrine research addresses surface chemistry in complex environments, in water systems and mineral cycles, where the dynamic corrosion and influx of ions, disinfectants, and their by-products, coincide in a complex environment. Her group's approach to address reactions at the gas/solid and liquid/solid interface has uncovered key mechanistic questions addressing pipeline corrosion, water quality, carbon capture, geochemical transformations, and other critical environmental challenges. Her group has

developed a new spectroscopic method to detect surface chemistry at the air/solution/metal interface that has been recognized with 4 invited talks at national meetings and public events, with an h-index of 10, over 480 citations, and 46 presentations. Dr. Perrine has achieved funding from the NSF and the MSGC (\$428K) as a PI and co-PI on external research funds and internally funded projects (\$37K). Her group's work on surface corrosion has been recognized in panel discussions, demonstrating how surface chemistry answers critical environmental science challenges. Her group plans to advance their method to measure chemistry at electrode interfaces for addressing effects of climate issues through surface catalysis.

- Service

Dr. Perrine helped bring in the XPS instrument in 2016 and the newest AFM instrument (as a co-PI, NSF MRI) to the shared ACMAL facility, increasing Michigan Tech's surface science capabilities. The XPS instrument has impacted 38+ researchers, 22 PI's, from 8 departments across campus. She served as the Earth Planetary and Space Sciences Institute seminar coordinator (2020-2021), on the Chemistry Department Diversity Equity and Inclusion Committee (2021-present), and on the Graduate Programs Committee (2016-2018, 2020-present). Externally, she has served as the secretary for the American Chemical Society Upper Peninsula Local Section in 2021, a reviewer for National Synchrotron Light Source II, (3-year term) at Brookhaven National Laboratory, a reviewer for the Department of Energy, and 8 notable scientific journals. She regularly contributes to the summer youth program and outreach events, teaching K-12 students and teachers surface physical chemistry. She has graduated 2 PhD students and advised 15 undergraduate students in her research, as well as serving on 12 PhD and 2 MS committees.

- Recent and Significant Publications/Exhibitions/Performances/Etc. ([§]graduate or [‡]undergraduate advisee)

- [§]de Alwis, C.; [§]Trought, M.; Crumlin, E. J.; Nemsak, S.; **Perrine, K. A.** Probing the Initial Stages of Iron Surface Corrosion: Effect of O₂ and H₂O on surface carbonation. *Applied Surface Science*, **2022**. IF = 7.392. doi.org/10.1016/j.apsusc.2022.155596
- [§]de Alwis, C.; [§]Trought, M.; [‡]Lundeen, J.; **Perrine, K. A.** Effect of Cations on the Oxidation and Atmospheric Corrosion of Iron Interfaces to Minerals. *J. Phys. Chem. A*, **125**, 36, **2021**; 8047–8063. IF = 2.781. [doi/abs/10.1021/acs.jpca.1c06451](https://doi.org/10.1021/acs.jpca.1c06451), *media article-recognized by NSF, chemie.de, and phys.org.
- [§]Trought, M. A.; **Perrine, K. A.** Investigating the Relationship between Adhesion Forces and Surface Functionalization using Atomic Force Microscopy. *J. Chem. Educ.* **98** (5) **2021**; 1768–1775. IF = 2.979. [doi/abs/10.1021/acs.jchemed.0c00558](https://doi.org/10.1021/acs.jchemed.0c00558)
- [§]de Alwis, C.; **Perrine, K. A.** *In Situ* PM-IRRAS at the Air/Electrolyte/Solid Interface Reveals Oxidation of Iron to Distinct Minerals. *J. Phys. Chem. A*, **124** (33) **2020**; 6735–6744. IF = 2.781. [doi/10.1021/acs.jpca.0c03592](https://doi.org/10.1021/acs.jpca.0c03592)
- [§]de Alwis, C.; Leftwich, T. R.; **Perrine, K. A.** New Approach to Simultaneous *In Situ* Measurement of the Air/Liquid/Solid Interface using PM-IRRAS. *Langmuir*, **36**(13) **2020**; 3404–3414. IF = 3.882. [doi/full/10.1021/acs.langmuir.9b03958](https://doi.org/10.1021/acs.langmuir.9b03958)
- Degaga, G.; [§]Trought, M. A.; Nemsak, S.; Crumlin, E.; Seel, M.; Pandey, R.; **Perrine, K. A.** Investigation of N₂ Adsorption on Fe₃O₄(001) using Ambient Pressure Photoelectron Spectroscopy and Density Functional Theory. *J. Chem. Phys.* **152**, **2020**, 054717. IF = 3.488. [doi/10.1063/1.5138941](https://doi.org/10.1063/1.5138941) *special edition on Oxide Chemistry and Catalysis article (invited). ** feature article
- [§]de Alwis, C.; Leftwich, T. R.; Mukherjee, P.; [‡]Denofre, A.; **Perrine, K. A.** Spontaneous Selective Deposition of Iron Oxide Nanoparticles on Graphite as Model Catalysts. *Nanoscale Advances* **1**, **2019**; 4729-4744. IF = 4.553. doi.org/10.1039/C9NA00472F
- [§]Trought, M. A.; [‡]Wentworth, I.; [§]de Alwis, C.; Leftwich, T. R.; **Perrine, K. A.** Influence of Surface Etching and Oxidation on the Morphological Growth of Al₂O₃ by ALD. *Surface Science*; (690) **2019**; 121479. IF = 1.942. doi.org/10.1016/j.susc.2019.121479 *highlighted on cover

INFORMATION SHEET FOR BOARD OF TRUSTEES
SHAN ZHOU
Michigan Technological University

Shan Zhou, who is currently an assistant professor of environmental policy without tenure in the Department of Social Sciences in the College of Sciences and Arts, is being considered for promotion to associate professor of environmental policy with tenure in the Department of Social Sciences in the College of Sciences and Arts.

Academic Degrees:

Ph.D.	2016	Public Policy, Georgia Institute of Technology, Atlanta, GA
M.S.	2012	Public Policy, Georgia Institute of Technology, Atlanta, GA
M.S.	2009	Environmental Sciences, Policy and Management, European Commission Erasmus Mundus Program (MESPOM)
B.S.	2007	Environmental Sciences, Beijing Normal University, Beijing, China

Professional Record:

2018 – present	Assistant Professor (without tenure), Department of Social Sciences, Michigan Technological University
2016-2017	Visiting Assistant Professor, School of Public and Environmental Affairs, Indiana University – Purdue University, Indianapolis, IN

Summary of Accomplishments:

• Teaching

Dr. Zhou teaches courses that support the department’s environmental and energy policy (EEP) MS and PhD programs, the online public policy graduate certificate, the Sustainability, Science & Society major, the Policy & Community Development major, and the Social Science major. The courses she has taught at Michigan Tech include: *UN 1025: Global Issues*, *SS 5350: Policy Analysis*, *SS 5300: Environmental & Energy Policy*, *SS 3630: Environmental Policy & Politics*, and *SS 3990: Sustainability and the Private Sector*. She strives to provide an inclusive classroom learning environment, and responsive teaching that caters to students' learning needs. Her teaching effectiveness can be demonstrated by the fact that she twice received the top 10% instructor award at Michigan Tech based on student teaching evaluations in fall 2020 (SS5350) and spring 2022 (SS3630). She was also recognized for her successful teaching during the Covid-19 pandemic in spring 2020 by the provost. She currently advises 3 EEP PhD students, and serves on the thesis committee of 1 EEP PhD, 2 environmental engineering PhD and 3 EEP MS students.

• Research/Scholarly Activity

Dr. Zhou is an environmental and energy policy scholar studying the intersection of public policy, clean technology and social equity. She has published 20 peer-reviewed articles in top-tier policy and interdisciplinary journals, including *Journal of Environmental Planning and Management*, *Review of Policy Research*, *Energy Policy*, *Journal of Environmental Policy and Planning*, *Social Science Quarterly*, *Energy Research and Social Science*, *Renewable Energy*, *Journal of Asian Public Policy*, *Journal of Cleaner Production*, *The Electricity Journal*, *ACS ES&T Engineering*, *Wiley Interdisciplinary Reviews: Energy and Environment*, and *Cleaner and Responsible Consumption*. Her work has been supported by both internal and external sponsors. As the sole PI, her project on effective and equitable clean energy policies in American rural communities is funded by the NOAA RISA program for 2022-2024 (\$146K). She is a Co-PI on a NASA funded grant examining social and economic consequences of climate and land use change in

Central Asia (\$449K). Her work on local green building policy received the prestigious 2020 Ralph E. Powe Junior Faculty Enhancement Award from Oak Ridge Associated Universities (ORAU) (\$10K). Her research project on energy policy and justice was funded by Michigan Tech's Research Excellence Fund (\$15K), in which she investigated how clean energy transition influences communities' access to clean energy infrastructure and exposure to air pollution in the U.S. Dr. Zhou has consistently presented her work at top national policy conferences (e.g., Midwest Political Science Association (MPSA) and Association of Public Policy Analysis and Management (APPAM)). Dr. Zhou's future research includes the investigation of causal linkages between nuanced clean energy policy design features and distributional policy outcomes in the areas of solar equity policies and local zoning ordinances. She plans to submit an NSF career proposal based on her past research expertise and publications in solar equity policy design.

- Service

Dr. Zhou has served on the Association for Public Policy Analysis & Management (APPAM) Natural Resource, Energy, and Environmental Policy Section Abstract Review Committee since 2019. She has served on the editorial boards of *Review of Policy Research* and *Energy Sources, Part B: Economics, Planning, and Policy* since 2021. She regularly organizes panel sessions and serves as discussants at APPAM and MPSA. She frequently provides review services to a range of journals, such as *Public Administration Review*, *Environmental Politics*, *Environmental Policy and Governance*, and *Energy Policy*. At MTU, Dr. Zhou serves on the Institute for Policy, Ethics and Culture curriculum committee, and regularly reviews Undergraduate Research Fellowship (SURF) and Research Excellence Fund (REF) proposals. In the department, she serves on the EEP graduate committee, Sustainability Science & Society curriculum committee, and development committee. Her past service includes the governance committee, undergraduate degree development committee, and she also contributed to the development of the online Public Policy Graduate Certificate.

- Recent and Significant Publications/Exhibitions/Performances

Funded Research (PI): "Design Innovative Policy Instruments to Promote Equitable and Effective Low-carbon Energy Infrastructure Investment in Rural Communities across the U.S.", NOAA, \$146,920.

Award & Funded Research (PI): "Incorporating LEED into Local Green Building Policies: the Blurred Boundary between Voluntarism and Regulation", the Ralph E. Power Junior Enhancement Award, Oak Ridge Associated Universities, \$10,000.

Funded Research (Co-PI): "Mapping and Modeling Desertification and Its Impact on Anthropogenic Dust and Health-related External Costs in Central Asia", NASA, \$449,378.

Selected Publications:

Gao, X., & **Zhou, S.** (2022). Solar adoption inequality in the US: Trend, Magnitude, and Solar Justice Policies. *Energy Policy*, 169, 113163. (co-corresponding author)

Zhou, S. & Solomon, B. D. (2021). The Interplay between Renewable Portfolio Standards and Voluntary Green Power Markets in the United States. *Renewable Energy*, 178, 720-729.

Zhou, S. (2021). "The Effect of Smart Meter Penetration on Dynamic Pricing: Evidence from the United States". *The Electricity Journal*, 34(3).

Zhou, S. & Liang, J. (2021) Migrant Workers and Environmental Amenities and Infrastructure in Urban China: From the Lens of Environmental Justice. *J. Environ. Policy Plan.*, 23:6, 781-795.

Solomon, B.D. & **Zhou, S.** (2021), Renewable Portfolio Standards: Do Voluntary Goals vs. Mandatory Standards Make a Difference? *Review of Policy Research*, 38: 146-163.

Zhou, S., & Solomon, B. D. (2020). Do Renewable Portfolio Standards in the United States Stunt Renewable Electricity Development beyond Mandatory Targets? *Energy Policy*, 140, 111377.

Zhou, S., Matisoff, D., Kingsley, G., & Brown, M. (2019). "Understanding Renewable Energy Policy Adoption and Evolution in Europe: The Impact of Coercion, Normative Emulation, Competition, and Learning". *Energy Research & Social Science*, 51, 1-11.

INFORMATION SHEET FOR BOARD OF TRUSTEES
Adam Meckler
Michigan Technological University

Adam Meckler, who is currently an assistant professor of music without tenure in the Department of Visual and Performing Arts, is being considered for promotion to associate professor of music, with tenure in the Visual and Performing Arts Department.

Academic Degrees:

M.M.	2011	University of Minnesota, Twin Cities MN
B.Mus.	2007	Lawrence University, Appleton Wi

Professional Record:

2019 – present	Assistant Professor (without tenure), Visual and Performing Arts Department, Michigan Technological University
2018-2019	Adjunct Professor (trumpet), Macalaster College
2018-2019	Adjunct Professor (trumpet), Minneapolis Community and Technical College
2013-2017	Adjunct Professor (trumpet, jazz, conducting, music theory, ensembles), McNally Smith College of Music
2012-2019	Jazz Instructor, Jazz Coordinator, Trumpet Instructor, MacPhail Center for Music

Summary of Accomplishments:

• Teaching

Inducted into the Academy of Teaching Excellence Spring of 2022, Adam is an innovative and energetic teacher, leading the way in jazz education through teaching music by ear. Meckler founded the Workshop Brass Band in his first year at MTU, a band that performs New Orleans-style jazz and learns all the music by ear. In addition to learning by ear, students in Meckler’s program are asked to sing and dance, tapping into the body’s natural instruments and vehicles of rhythm to improve their jazz playing. The Michigan Tech jazz program has grown from around 40 students to more than 60 since he joined the faculty.

Adam has presented on teaching Jazz by ear twice at the Minnesota Music Educators Association Conference in Minneapolis and has had the honor of being asked to direct the All-State High School Jazz Ensembles, groups that feature the top high school players in the state, in both South Dakota and North Dakota. Meckler is frequently tapped as a clinician and featured guest artist for high school and university jazz festivals all over the Midwest. His unique style of teaching by ear along with his impressive trumpet playing and timely compositions for big band have made him a top-call teaching artist.

Meckler is also passionate about helping students understand the music industry including strategies for building an audience and passive income through social media, Youtube, Spotify, and related fields like sync licensing and touring. Meckler runs the tech startup Gig Boss, an app to help freelance musicians and bandleaders organize their schedule and finances, as well as a podcast helping to educate on music industry topics.

In Fall of 2023, Meckler will teach a modern songwriting class utilizing modern recording and composition techniques geared towards any genre, the first of its kind at Michigan Tech.

Research/Scholarly Activity

Meckler leads the Adam Meckler Orchestra, a critically acclaimed and award-winning 18-piece big band that performs his original music. He has released four albums and several singles as a leader since joining the faculty at Michigan Tech. His single *Ghosted* has amassed more than 17,000 streams on Spotify. Meckler remains a top-call trumpeter and composer/arranger working regularly with The Hornheads recording for and/or performing with artists like Cory Wong, Dave Koz, Michael Jackson (posthumous release on Sony), Nathy Peluso, Dante Spinetta, the Minneapolis Funk All-Stars and others. Meckler's horn arrangements can be found on recordings by Kevin Gastonguay, Nooky Jones, Lucia Sarmiento, Shaun Johnson, and others. Adam's Youtube channel focuses on educational content for trumpeters and students of the jazz tradition. Since releasing regular education videos starting in 2020, his channel has grown from around 500 subscribers to more than 5,000 with some individual videos over 250,000 views. Meckler's Gig Boss podcast has over 4,700 total downloads, and his Gig Boss app has more than 1,000 users across all platforms.

Meckler won an REF grant in January of 2022 and is in the process of creating "Jazz Meets Hip-Hop" a project in which producers are sampling music by the Adam Meckler Orchestra and turning those samples into new songs. The new songs will feature collaborations with rappers, singers, and horn players. "Jazz Meets Hip Hop" will help to bring international recognition to Meckler's professional work, and in turn will point a spotlight on Michigan Tech's growing jazz program. Meckler's jazz students regularly benefit from his industry connections by way of performances at professional clubs each January during the Jazz Lab Band tour, and recording collaborations with acclaimed artists like Todd Clouser's A Love Electric.

• Service

Meckler serves on the NFT working group, the VPA's REDI Committee (DEIS), and has been a part of two faculty searches since 2019. He has served on the General Education Council and is the faculty advisor for the Fighting Game Club, and the Pirate Choir, both student organizations. Adam has helped provide music for functions on campus including the Fall 2022 President's Reception, and the Martin Luther King Jr. Banquet Dinners in 2020 and coming up in 2023. Adam has also served as faculty advisor and coach for the Video Game Music Jazz Ensemble, a 22-piece student-lead band.

Recent and Significant Publications/Exhibitions/Performances/Etc.

- w/ St. Paul and the MPLS Funk All-Stars + The Hornheads, Private Event, 9/10/22
- Supercell Tour (Meckler-lead trio based in Chicago) 8/7/22-8/10/22 (Art Lit Lab, Madison, Wi; Icehouse, MPLS, MN; Bar Centro, Milwaukee, Wi; The Whistler, Chicago, IL)
- w/ Steve Cole @ Dakota Club, Minneapolis, MN 7/15-16/22
- Guest Jazz Artist, Owatanna HS Jazz Fest, MN 5/14/22
- Guest Jazz Artist, Farmington HS Jazz Festival, MN 4/20/22
- Fayetteville, AR PAC w/ Shaun Johnson Big Band Experience
- Guest Jazz Artist, Red River High School, Myra Jazz Festival, Grand Forks, ND 2/22/22
- Guest Jazz Artist, Mitchell High School, Performance @ SDSU Bandmaster's Association Conference 2/11/22
- Guest Jazz Artist, Grand Forks High School Jazz Fest, 1/26/22
- Meckler Quintet + MTU Jazz Lab Band @ Crooners, Minneapolis, 1/6/22
- Meckler/Courage/Green Open Recording Session, Chicago, 12/15/21
- w/ Shaun Johnson Big Band Experience on tour (North Carolina, TN) 9/17-18/21
- Adam Meckler Orchestra @ Crooners Lounge, Minneapolis 8/13/21
- w/ Jana Nyberg Group @ Door County Tour, Wisconsin July 14-18
- w/ Dave Koz and Cory Wong @ Stillwater River Boat July, 2021

INFORMATION SHEET FOR BOARD OF TRUSTEES
YAKOV NEKRICH
Michigan Technological University

Yakov Nekrich, who is currently an associate professor of Computer Science without tenure in the Department of Computer Science in the College of Computing, is being considered for promotion to associate professor of Computer Science with tenure in the Department of Computer Science in the College of Computing.

Academic Degrees:

Ph.D.	2001	University of Bonn, Computer Science, Germany
M.S.	1996	University of Latvia, Computer Science, Latvia
B.S.	1994	University of Latvia, Computer Science, Latvia

Professional Record:

2019 – present	Associate Professor (without tenure), Department of Computer Science, Michigan Technological University
2017 – 2019	Research Assistant Professor, University of Waterloo
2014 – 2017	Post-Doctoral Fellow, University of Waterloo
2012 – 2013	Research Associate, University of Kansas

Summary of Accomplishments:

- Teaching

While Dr. Nekrich worked at MTU, he taught CS4321, Introduction to Algorithms, in Spring 2020, Spring 2021, and Spring 2022. “Introduction to Algorithms” is the main mandatory course in Algorithms typically taken by students during their 3rd year. He has also taught CS5321, the main graduate Algorithms course, in Fall 2021 and Fall 2022. In Spring 2019 Dr. Nekrich was among the 55% of the instructors on campus who were rated “excellent” for providing remote instruction after classes went online.

- Research/Scholarly Activity

His main research areas are data structures and data compression. His research activity in 2019 -2022 and in previous years focused on fundamental algorithmic problems related to storage and representation of data. Dr. Nekrich investigated geometric data structures and algorithms that work with string (i.e., sequence) data.

His research achievements at MTU over the previous 3,5 years can be summarized as follows. Dr. Nekrich has published three papers at ACM Symposium on Discrete Algorithms (SODA'20, '21, and '23) and one paper in ACM Symposium on Theory of Computing (STOC'21). Both SODA and STOC are prime conferences of the Algorithms CS community as reflected by their top position in conference rankings. For example, both conferences have the highest rank A* in the CORE conference ranking (<http://portal.core.edu.au/conf-ranks/>). He also had five further conference publications that have rank A according to the CORE ranking and six journal publications in such venues as Algorithmica, Theoretical Computer Science (TCS), and Journal of Computational Geometry. His research is supported by an NSF grant "AF: Small: Fundamental Geometric Data Structures". Dr. Nekrich is the only PI of this project with a budget of \$594,059.00.

In his future work Dr. Nekrich intends to continue investigating fundamental problems related to computational geometry, string algorithms, and compressed data structures.

- Service

His external service included serving on program committees of such internationally recognized conferences as International Symposium on Computational Geometry (SoCG'22), Algorithms and Data Structures Symposium (WADS'21 and '23), and Data Compression Conference (DCC '19-'23). Dr. Nekrich also acted as a reviewer for publications in SODA, STOC, ICALP, and SoCG and served on the assessment committee of a Ph.D. thesis defended at the University of Aarhus, Denmark.

His departmental service included preparing and grading Algorithms qualifying exams and serving on the ABET committee (academic year '22-23).

- Recent and Significant Publications/Exhibitions/Performances/Etc.

- Yakov Nekrich, Saladi Rahul
4D Range Reporting in the Pointer Machine Model in Almost-Optimal Time
34th ACM-SIAM Symposium on Discrete Algorithms (SODA 2023)
- Timothy M. Chan, Yakov Nekrich, Saladi Rahul, Kostas Tsakalidis
Orthogonal Point Location and Rectangle Stabbing Queries in 3-d
Journal of Computational Geometry, 13(1) 2022
- Yakov Nekrich
Optimal-Time Dynamic Planar Point Location in Connected Subdivisions
53rd ACM Symposium on Theory of Computing (STOC 2021)
- Yakov Nekrich
New Data Structures for Orthogonal Range Reporting and Range Minima Queries
32nd ACM-SIAM Symposium on Discrete Algorithms (SODA 2021)
- Yakov Nekrich
Four-Dimensional Dominance Range Reporting in Linear Space
36th International Symposium on Computational Geometry (SoCG 2020)
- Timothy M. Chan, Quizheng He, Yakov Nekrich
Further Results on Colored Range Searching
36th International Symposium on Computational Geometry (SoCG 2020)
- Timothy M. Chan, Yakov Nekrich
Better Data Structures for Colored Orthogonal Range Reporting
31st ACM-SIAM Symposium on Discrete Algorithms (SODA 2020)

VIII-C. PROMOTIONS

The policy for granting promotion to faculty members requires that the process begin with deliberations in the candidate's home unit and proceed through additional review at multiple levels. Recommendations are reviewed by the provost, and the provost makes a recommendation to the president of the University. The president has accepted the provost's recommendation regarding promotion for the candidates listed in this section.

RECOMMENDATION: It is recommended that the Board of Trustees approves the appointments involving promotion listed in this section.



Michigan Tech

Office Memo

Office of the Provost and
Senior Vice President for Academic Affairs

Phone: (906) 487-2440
Fax: (906) 487-2935

TO: Richard Koubek, President
FROM: Andrew Storer, Provost & Senior Vice President for Academic Affairs
DATE: March 28, 2023
SUBJECT: Promotion Recommendations

In accordance with Board of Trustees Policy 6.4, Academic Tenure and Promotion, the following faculty members have been recommended for promotion. I have reviewed and support these recommendations and request that the Board of Trustees be asked to approve them at their April 28, 2023 meeting. If approved, the promotions will be effective August 14, 2023.

**Promotion from Associate Professor with Tenure to
Professor with Tenure**

Dukka KC Computer Science

Pasi Lautala Civil, Environmental, & Geospatial Engineering

Pengfei Xue Civil, Environmental, & Geospatial Engineering

Evan Kane College of Forest Resources & Env. Sci.

Thomas Werner Biological Sciences

Christo Christov Chemistry

Ashutosh Tiwari Chemistry

Zhiying Shan Kinesiology & Integrative Physiology

Donald Lafreniere Social Sciences

Chelsea Schelly Social Sciences

APPROVED:

Richard Koubek, President

3/31/23

Date

INFORMATION SHEET FOR BOARD OF TRUSTEES

Dukka B. KC

Michigan Technological University

Dukka B. KC, who is currently an associate professor computer science with tenure in the Department of computer science in the College of Computing, is being considered for promotion to professor of computer science with tenure in the Department of Computer Science in the College of Computing.

Academic Degrees:

Ph.D.	2006	Kyoto University, Kyoto, Japan
M.Inf.	2003	Kyoto University, Kyoto, Japan
B.E.	2001	Kyoto University, Kyoto, Japan

Professional Record:

2022-Present	Associate Dean of Research, College of Computing, Michigan Technological University, Houghton, MI
2021-Present	Associate Professor (tenured), Computer Science Department, College of Computing, Michigan Technological University, Houghton, MI
2019-2021	Associate Professor (with tenure) and Director of Data Science, Department of Electrical Engineering and Computer Science, College of Engineering, Wichita State University, Wichita, KS
2018-2019	Associate Professor (tenured) and Graduate Program Director, Department of Computational Science and Engineering, North Carolina A&T State University, Greensboro, NC
2012-2018	Assistant Professor and Graduate Program Director, Department of Computational Science and Engineering, North Carolina A&T State University, Greensboro, NC
2009-2011	Cancer Research Training Fellow, National Cancer Institute, National Institutes of Health, Rockville, MD
2007-2009	Postdoctoral Fellow, Department of Bioinformatics and Genomics, The University of North Carolina at Charlotte, Charlotte, NC
2006-2007	Postdoctoral Fellow, Center for the Study of Systems Biology, Georgia Institute of Technology, Atlanta, GA

Summary of Accomplishments:

• Teaching

He has taught various courses in Computer Science/Computational Science and Engineering such as Computational Intelligence, Introduction to Deep Learning, Data Mining and Machine Learning, Introduction to Big Data among others. These courses all have good enrollments and have been well received by the students (based on student evaluations). Additionally, Dr. KC was the graduate program director and led the efforts to create MS programs in Data Science in his previous institutions. He had the privilege of advising and working with some very talented students.

• Research/Scholarly Activity

His general research area is Bioinformatics and Data Science with a special focus on applied Deep learning. Dr. KC maintains a very vibrant research group. In addition to his disciplinary focus, he has led research initiatives in multiple interdisciplinary/convergent research projects including ‘Disaster Analytics

Resilience Center' among many others. He has received grants from various federal and state agencies such as NSF, NIH, DoD as well as private foundations, with a total funding amount of over \$9M. Some of the exciting projects in the lab include developing deep learning-based approaches for smart telehealth ECG and human activity monitoring systems and developing *bioinformatics workflows/pipeline* for the surveillance of pathogens like Covid-19.

Dr. KC is equally invested in *improving the computing research infrastructure* for the University. He has served as PI/Co-PI in two NSF MRIs to acquire computer cluster, two computing equipment grants from DOD (DARPA) and is acquiring/building a bioinformatics computer cluster (through MI-Sapphire grant). Additionally, he is equally *invested in training and mentoring of the next generation of scientists*.

- Service

Dr. KC is currently Associate Dean of Research in the College of Computing and is actively carrying out the responsibilities to improve the research enterprise of the College of Computing and mentoring of young faculty in the college. Additionally, he is also the Associate Director of Institute of Computing and Cybersystems (ICC), a 75-member institute that represents all five Michigan Tech colleges and more than a dozen academic departments and, in that capacity, he is actively working on developing and promoting collaborative, cross-disciplinary research and learning experiences for the members of the institute. Additionally, Dr. KC is serving on various university level committees including but not limited to HPC Steering Committee, Additive Manufacturing Tech Forward initiatives. He is also the co-organizer of Function COSI in Intelligent Systems in Molecular Biology (ISMB) , the biggest conference in his research area. Moreover, he serves as an associate editor in BMC Bioinformatics and Frontiers in Bioinformatics.

Recent and Significant Publications/Exhibitions/Performances/Etc.

1. Pokharel S, Pratyush P, Heinzinger M, Newman RH, **KC DB**, LMSuccSite: Improving Protein succinylation sites prediction using embeddings from protein language model, Scientific Reports, 12, 16933, 2022.
2. Maccarthy E, Zhang C, Zhang Y, **KC DB**, GPU-ITASSER: a GPU accelerated I-TASSER protein structure prediction tool, Bioinformatics, 38(6):1754-1755, 2022.
3. Saigo H, **KC DB**, Saito N, Einstein-Roscoe regression for the slag viscosity problem in steelmaking, Scientific Reports, 12(1), 1-9, 2022.
4. Pakhrin SC, Aoki-Kinoshita KF, Caragea D, **KC DB**, DeepNGlyPred: A Deep neural network-based approach for human N-linked glycosylation site prediction, Molecules, 27(23), 7314, 2021.
5. Chaudhari M, Thapa N, Ismail H, Chopade S, Caragea D, Kohn M, Newman RH, **KC DB**, DTL-DephosSite: Deep transfer learning-based approach to predict dephosphorylation sites, Front. Cell Dev. Biol., 662983, 2021.
6. Thapa N, Chaudhari M, Iannetta A, White C, Roy K, Newman RH, Hicks LM, **KC DB**, A deep learning based approach for prediction of *Chlamydomonas reinhardtii* phosphorylation sites, Scientific Reports, 11, 12550, 2021.
7. Thapa N, Liu, Z, **KC DB**, Gokaraju B, Roy K, Comparison of machine learning and deep learning models for network intrusion detection systems, Future Internet, Vol. 12, 10, 167, 2020.
8. Thapa N, Chaudhari M, McManus S, Roy, K, Newman RH, Saigo H, **KC DB** DeepSuccinylSite: a deep learning-based approach for protein succinylation site prediction, BMC Bioinformatics, 21(3), 1-10, 2020.
9. **KC DB**, Recent advances in sequence-based protein structure prediction Briefings in Bioinformatics,1:18(6):1021-1032, 2017.
10. **KC DB** and Livesay DR, Improving position specific predictions of protein functional sites using phylogenetic motifs, Bioinformatics, 24:2308-2316, 2008.

INFORMATION SHEET FOR BOARD OF TRUSTEES
Pasi Lautala
Michigan Technological University

Pasi Lautala, who is currently an associate professor of civil engineering with tenure in the Department of Civil, Environmental, and Geospatial Engineering in the College of Engineering, is being considered for promotion to professor of civil engineering with tenure in the Department of Civil, Environmental, and Geospatial Engineering in the College of Engineering.

Academic Degrees:

Ph.D.	2007	Michigan Technological University, Houghton, MI
M.S.	1997	Michigan Technological University, Houghton, MI
B.S.	1995	Tampere University of Technology, Tampere, Finland

Professional Record:

2017 – present	Associate Professor (with tenure), Department of Civil, Environmental, and Geospatial Engineering, Michigan Technological University
2012 – 2017	Assistant Professor (without tenure), Department of Civil, Environmental, and Geospatial Engineering, Michigan Technological University
2007 – 2012	Research Assistant Professor (without tenure), Department of Civil, Environmental, and Geospatial Engineering, Michigan Technological University
2004 – 2005	Eno Transportation Scholar, Cuyahoga, OH
2000 – 2002	Transportation Engineer, CH2M Hill, Chicago, IL
1998 – 2000	Design Engineer, CTE Engineers, Inc. (AECOM), Chicago, IL

Summary of Accomplishments:

- Teaching

Dr. Lautala has developed courses in Rail Transportation and created a Rail Transportation minor allowing students from multiple departments to have a tangible focus in rail systems on their academic record. He has also led redesign of basic Transportation Engineering course and taught courses in the College of Business. Dr. Lautala was the recipient of the Academy of Teaching Excellence Award in 2008.

I believe that principles for developing professionals and for coaching are similar. I use the word “develop” instead of “teach”, because it more properly defines the purpose of university education. In my philosophy, teaching is not sufficient; we also need to make sure that students understand how to apply the principles as their skills progress. Our ultimate goal as educators should be to develop engineers (or other professionals), who turn into top leaders or key specialists by utilizing the capabilities of independent thinking and problem-solving we instill to them throughout their education. I’m also a big believer of bringing emotion and passion to education, as it’s been proven that learning is at its best, when “learners”/students are emotionally involved in the process. I have used several methods over time to “excite” students on topics, such as in-class team competitions and by encouraging them to revisit unclear topics with potential recovery of 50% of the points lost in the test after orally explaining the correct responses to me. This motivates students to re-review unclear topics and take ownership in learning the material. After noticing increasing difficulty to maintain active participation of the class in a lecture-based environment, I shifted my approach toward an active learning environment. In addition to modifications to my classes, I’ve put significant effort to add active

learning through sponsored student projects, as I believe realistic project-based learning is one of the greatest motivational tools for learning. I work to develop my teaching skills on continuous basis, such as through participation in CTL's lunch and learn sessions and on teaching/learning webinars. I stay active in curriculum development, most recently by facilitating a major redesign of our basic transportation course, so each expert of our transportation faculty can provide a snapshot of their area of expertise to students through a modular format.

I regularly write "teaching notes" after lectures and conduct an informal feedback session at the end of each of my classes and document all suggestions and criticism by students to be considered for the next year. Teaching (or coaching) is truly a passion and it's been a privilege to learn from many of my colleagues and CTL staff on how to keep improving our offerings.

- Research/Scholarly Activity

Since the start of his academic career, Dr. Lautala has been involved in 43 funded research projects/studies. He has been the principal investigator for 20 of them, co-principal for 15 and in senior research role for the remaining 8. The total value of all projects under Dr. Lautala's leadership (PI) have been over \$5.0 million. Several have been collaborative in nature with portions of the budget dedicated to collaborating colleagues. Dr. Lautala has been responsible for 60-100% of the total funds for these projects, depending on each specific project. Projects under Dr. Lautala's co-leadership (Co-PI) have also exceeded \$5.0 million. Until recently, Dr. Lautala had significant fiscal responsibility (up to 50%) on most projects. For the most recently awarded projects, his role is more of a "mentor" and his fiscal responsibility has been as low as 5%, depending on the project.

Transportation is extremely multidisciplinary and international, even when considering my specialty, rail and multimodal transportation. To date, I have collaborated with researchers from several engineering departments, business and forestry departments and communicated with experts in various countries, especially in Scandinavia, Asia and South America. My role has not been limited to my personal research interests, but rather I've placed a growing importance on facilitating research with my colleagues, especially younger ones, who have evident expertise applicable to rail and multimodal transportation. One of the greatest early enablers for our collaborative research was funding from the National University Rail Center (NURail) which we leveraged to obtain additional funds from both rail industry/state entities. Since the conclusion of NURail Center grant, we turned our attention to take advantage of the credibility built during the center operation and apply directly for the Federal Railroad Administration (FRA) grants. With this approach we have rapidly expanded the Michigan Tech rail transportation research from 1-2 concurrent projects to a portfolio of almost ten FRA grants, led by seven different faculty/staff from five departments, each with multiple external partners. This is the type of success that I have been working to achieve for the past 15 years; not only to become a leader in rail transportation research myself, but to make Michigan Tech one of the leading universities. Dr. Lautala was selected to serve as a Faculty Research Fellow by the Office of Vice President for Research during the 2020-21 academic year. He has published 24 refereed journal publications, 35 peer-reviewed conference papers, and 25 conference presentations.

- Service

Dr. Lautala has been in leadership roles with the Transportation Research Board (TRB), the American Railway Engineering and Maintenance of Way Association (AREMA), and the ASCE Rail Transportation Committee. He is also serving in the State of Michigan Supply Chain and Logistics Commission. In service to the university, Dr. Lautala has served as Director for the Michigan Tech Transportation Institute for 2 years (2016-2018) and was re-elected to that role in summer, 2022. He has been the Director of the Rail Transportation Program since its establishment in late 2007.

INFORMATION SHEET FOR BOARD OF TRUSTEES

Pengfei Xue
Michigan Technological University

Pengfei Xue, who is currently an associate professor of water resources with tenure in the Department of Civil, Environmental, and Geospatial Engineering in the College of Engineering, is being considered for promotion to full professor of water resources with tenure in the Department of Civil, Environmental, and Geospatial Engineering in the College of Engineering.

Academic Degrees:

Ph.D.	2012	University of Massachusetts Intercampus Marine Science Graduate Program, Dartmouth, MA
B.S.	2004	East China Normal University, Shanghai, China

Professional Record:

2022 – present	Associate Director , Great Lakes Research Center, Michigan Technological University
2021 – 2022	Visiting Professor , Department of Civil and Environmental Engineering, Massachusetts Institute of Technology
2020 – present	Geophysical Scientist, Joint Appointment at Environmental Science Division, Argonne National Laboratory
2019 – Present	Associate Professor (with tenure) , Department of Civil, Environmental, and Geospatial Engineering, Michigan Technological University
2018– present	Director , Numerical Geophysical Fluid Dynamics Laboratory, Great Lakes Research Center, Michigan Technological University
2013– 2018	Assistant Professor (without tenure) , Department of Civil and Environmental Engineering, Michigan Technological University
2012 – 2013	Postdoctoral Associate , Department of Earth, Atmospheric, and Planetary Sciences, Massachusetts Institute of Technology, Cambridge, MA
2006 – 2012	Graduate Research Assistant , Intercampus Marine Science Graduate Program, University of Massachusetts, Dartmouth, MA
2005 – 2006	Visiting Scholar , School for Marine Science & Technology, University of Massachusetts, Dartmouth, MA
2004 – 2005	Graduate Research Assistant , State Key Laboratory of Estuarine and Coastal Research, East China Normal University, Shanghai, China

Summary of Accomplishments:

• Teaching

Dr. Xue’s teaching evaluation scores were consistently higher than department average (4.21-4.25), ranging from 4.35 to 4.75, reflected in CEE 3620 (Water Resources Engineering), a required undergraduate course for the water resources program (class size: 50–60 students, average teaching evaluation score: 4.35); CEE/ATM 5520 (Hydrodynamic Modeling), a graduate course (class size: 5–12 students; average teaching score: 4.75); and ATM 5680 (Introduction to Geophysical Fluid Dynamics), a graduate course (class size: 37; average teaching score: 4.6). Dr. Xue developed the new graduate course CEE 5520 focusing on numerical modeling in environmental fluid dynamics, refined the undergraduate course in water resources engineering CEE 3620, and advanced the graduate course in geophysical fluid dynamics ATM5680 to bring students new modeling skills and knowledge. The courses highlight model applications in environmental engineering and science.

• Research/Scholarly Activity

Dr. Xue has focused his research efforts on developing integrated regional earth system models (IRESM) and applying cutting-edge modeling systems to a wide range of environmental, climate, and ecosystem

problems. His innovative research has led to a series of research projects funded by NOAA, NASA, USGS, DOE, EPA, NSF, the State of Michigan, and private funding sources totaling \$17.8M, (of which \$8.5M to Michigan Tech, \$3.1M was Dr. Xue's fraction, excluding cost share). Dr. Xue's last 3-year average research expenditure of \$638K/yr (\$505K, \$646K, and \$764K in FY20, 21, and 22, respectively) has been the highest in his department, which was approximately 60% greater than the second most active researchers in the department. His last 3-year average research expenditure of \$668K/yr (\$505K, \$694K, \$804K in FY20, 21, 22) at the Great Lakes Research Center (GLRC) is also the highest of any GLRC staff or affiliated faculty member. Two pending proposals led by Dr. Xue, potentially totaling \$945K, have been recommended for funding as of November 17 (The SPO has received a formal Notification of Award for one proposal). Dr. Xue's outstanding research has also provided him with various opportunities to assume leadership roles (e.g., Associate Director of the GLRC) and collaborate with other institutions (e.g., a joint appointment with Argonne National Laboratory) to raise MTU's national profile.

Dr. Xue has advised nine graduates and three postdocs. His research group currently includes three Ph.D. students, two research M.S. students, one postdoctoral fellow, and one assistant research scientist (all of whom are fully supported by Dr. Xue's research projects), along with undergraduate and high school interns. Their scholarly developments have been recognized with sustained research grants, numerous peer-reviewed publications, professional leadership opportunities, invited keynote presentations, and media coverage. Dr. Xue has published 36 refereed journal papers in leading journals in his specialty areas, with three other manuscripts under review or in revision. Other publication highlights include 76 conference presentations and 23 invited presentations.

Service

Dr. Xue has made significant service contributions at the university, national, and international levels. Highlights include serving as Associate Director of the GLRC, which achieved \$9.2 million in new research awards in the fiscal year 2022. Dr. Xue's administrative and leadership roles include serving on the executive team for the GLRC's strategic growth; as a lead faculty advisor to the GLRC Director; and as the group lead of the Hydrodynamics, Climate, and Environment Research Team within the GLRC. Dr. Xue also established the [first joint appointment \(JA\) between MTU and Argonne National Laboratory \(ANL\)](#) to develop a bi-directional research network connecting MTU faculty with ANL scientists, resulting in funded projects, particularly for junior faculty. Other examples of university service include serving on MTU's Early Career Management (ECM) Committee, a faculty search committee, and the Department Graduate and Research Committee. His national and international professional services include co-chairing or serving on the organizing committees for national conferences; serving as an associate editor or guest editor for international journals; serving on proposal review panels for the NOAA, DOE, and Sea Grant programs; and reviewing manuscripts for more than 20 journals.

- Recent and Significant Publications/Exhibitions. ([†]Student advisee; *Corresponding author):
- [†]**Kayastha, M. B.,** Ye, X., Huang, C., and ***Xue, P.** (2022). Future Rise of the Great Lakes Water Levels under Climate Change. *Journal of Hydrology*, 612, 128205. (*Journal Impact Factor 6.708*). This work was also presented at the Frontiers in Hydrology Meeting, San Juan, Puerto Rico, June 19-24, 2022, with [Press release](#) from American Geophysical Union (AGU); [news article by Detroit Public TV](#).
- ***Xue, P.,** Ye, X., Pal, J. S., Chu, P. Y., Kayastha, M. B., and Huang, C. (2022). Climate Projections over the Great Lakes Region: Using Two-way Coupling of a Regional Climate Model with a 3-D Lake Model. *Geosci. Model Dev.*, 15, 4425–4446. (*Journal Impact Factor 6.892*). This work was reported [by Detroit Free Press](#) for sections: “Climate change projections” and “Fish and climate”.
- **Xue, P. (Keynote)** (2022) Towards a Better Predictive Understanding of the Great Lakes System. 12th International Workshop of Modeling the Ocean (IWMO2022), Ann Arbor, MI, June 28-July 1, 2022.
- **Xue, P. (Invited talk)** (2022) “Climate Change and Coastal Hazards: Understanding of the Earth's Largest Lake System”, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, Cambridge, MA, February 4, 2022

INFORMATION SHEET FOR BOARD OF TRUSTEES

Evan S. Kane

Michigan Technological University

Evan S. Kane, who is currently an associate professor with tenure in the College of Forest Resources and Environmental Science, is being considered for promotion to professor in the College of Forest Resources and Environmental Science.

Academic Degrees:

Ph.D.	2006	The University of Alaska, Forest Ecology (Subsurface Science), Fairbanks, AK
M.S.	2001	Michigan Technological University, Forestry, Houghton, MI
B.S.	1999	Michigan Technological University, Applied Ecology, Houghton, MI

Professional Record:

2017 – present	Associate Professor- Michigan Technological University; and Research Scientist- U.S.D.A. Forest Service, Houghton, MI
2012 – 2017	Assistant Professor- Michigan Technological University; and Research Scientist- U.S.D.A. Forest Service, Houghton, MI
2009 – 2012	Research Assistant Professor- Michigan Technological University; and Research Scientist- U.S.D.A. Forest Service, Houghton, MI
2007 – 2009	Center for Water Sciences Research Fellow, Michigan State Univ., Lansing, MI
2006 – 2007	Post-doctoral research associate, Dept. of Plant Biology, Michigan State Univ., Lansing, MI
2003-2005	Inland Northwest Research Alliance (U.S. Dept. of Energy); Subsurface Science Graduate Research Program.

Summary of Accomplishments:

• Teaching

Kane has been the instructor for Soil Science, a required course in the College of Forestry, for the last 13 years. This is a large class in the College, with enrollment now past 80 students per semester. Undergraduate student evaluations have been favorable (mean of the “seven dimensions” over the past five years hovering around 4.5). He also teaches complementary graduate courses including the Master of Forestry requirement for Soil Science. In the last five years he served as chair on 6 Masters Committees and 6 Doctoral Committees.

• Research/Scholarly Activity

Kane has published over 75 peer-reviewed manuscripts (an average of 6 per year in the last 5 years), with an H-Index of 26 (Web of Science). Twenty peer-reviewed publications in the last 5 years were led or co- led by graduate or undergraduate students, suggesting alignment between research/scholarship and education. In the last 5 years, Kane has submitted 43 grant proposals as PI or Co-I, with a success rate of 65%, bringing in \$3.6 million in the last 5 years (Faculty Activity Report).

Kane’s research focusses on understanding the impacts of climate change drivers on belowground ecosystem function, which solidly supports the College vision, “Given our changing world, we work to address the challenges in natural resource sustainability through education and training, novel research, innovation, and outreach”. To this end, Kane has garnered external support for experimental research

studies in Alaska and Michigan, which continue to provide opportunities for novel research, education and training for undergraduate and graduate students.

- Service

Kane serves on and chairs department faculty search committees, and chaired one search committee in the past 5 years. Kane is a faculty advisor for the Wildland Fire club in the College. Within the School, Kane serves on the Graduate Dean Awards Advisory Committee and the Interschool Tenure and Promotion Committee. He is currently on the editorial board for two peer reviewed journals—*Frontiers in Earth Science*, and *Land*. Kane performs about a dozen journal peer reviews a year, and serves as an *ad hoc* reviewer for NSF proposals. Kane has served on one NSF panel in the last 5 years.

- Recent and Significant Publications (“*” denotes graduate student)

Stuart JEM, Tucker CL, Lilleskov EA, Kolka RK, Chimner RA, Heckman KA, **Kane ES**. 2022. Evidence for older carbon loss with lowered water tables and changing plant functional groups in peatlands. *Global Change Biology*, <https://doi.org/10.1111/gcb.16508>.

Walker XJ, Rogers BM, Veraverbeke S, Johnstone JF, Baltzer JL, Barrett K, Bourgeau-Chavez L, Day NJ, de Groot WJ, Dieleman CM, Goetz S, Hoy E, Jenkins LK, **Kane ES**, Parisien M-A, Potter S, Schuur EAG, Turetsky M, Whitman E, Mack M. 2020. Fuel availability not fire weather controls boreal wildfire severity and carbon emissions. *Nature- Climate Change*, <https://doi.org/10.1038/s41558-020-00920-8>.

Kane ES, *Veverica TJ, Tfaily MM, Lilleskov EA, *Meingast KM, Kolka RK, *Daniels AL, Chimner RA. 2019. Reduction-oxidation potential and dissolved organic matter composition in northern peat soil: interactive controls of water table position and plant functional groups. *Journal of Geophysical Research- Biogeosciences*, <https://doi.org/10.1029/2019JG005339>.

Schädel C, Bader MKF, Schuur EAG, Bracho R, Capek P, De Baets S, Diakova K, Ernakovich J, Estop-Aragones C, Graham DE, Hartley IP, Iversen CM, **Kane ES**, and 13 others. 2016. Potential carbon emissions dominated by carbon dioxide from thawed permafrost soils. *Nature- Climate Change*, <https://www.nature.com/articles/nclimate3054>.

Turetsky MR, **Kane ES**, Harden JW, Ottmar KL, Manies KL, Kasischke ES. 2011. Recent acceleration of biomass burning and carbon losses in Alaskan forests and peatlands. *Nature- Geoscience*, 4:27-31. <https://doi.org/10.1038/ngeo1027>.

INFORMATION SHEET FOR BOARD OF TRUSTEES
 THOMAS WERNER
 MICHIGAN TECHNOLOGICAL UNIVERSITY

Recommendation:

Thomas Werner, who is currently an associate professor with tenure in the Department of Biological Sciences, is being considered for promotion to full professor of Genetics and Developmental Biology with tenure in the Department of Biological Sciences in the College of Sciences and Arts.

Academic Degrees:

Ph.D.	2005	Umeå University, Umeå, SWEDEN
M.S.	1997	Friedrich-Schiller-University, Jena, GERMANY
B.S.	1995	Friedrich-Schiller-University, Jena, GERMANY

Professional Record:

2018 – present	Associate Professor, Department of Biological Sciences, Michigan Technological University
2010 – 2018	Assistant Professor, Department of Biological Sciences, Michigan Technological University
2005 – 2010	Post-Doctoral Fellow, Howard Hughes Medical Institute, Department of Molecular Biology, University of Wisconsin-Madison

Summary of Accomplishments:

Teaching

Dr. Thomas Werner won the Distinguished Professor of the Year Award 2021 (awarded by the Michigan Association for State Universities) as well as the Distinguished Teaching Award in both categories in 2013 and 2019. During the past 13 years, Dr. Werner taught five different undergraduate level courses (Genetics BL2200, Genetic Techniques Laboratory BL2210, Immunology BL3640, Genomics BL3300, and Developmental Biology BL4410). He has also been teaching the graduate-level courses Seminars in Biological Sciences BL5012 and Developmental Biology BL5410 for the past two years. He developed all of his courses from scratch. Dr. Werner's teaching evaluations over the past 13 years have averaged above 4.8 on a 5-point scale, and he has consistently ranked among the top 10% teachers of the university since he started teaching at Michigan Tech.

Research/Scholarly Activity

Very broadly defined, Dr. Werner is an entomologist working on different biological questions in drosophilids ("fruit flies") and lepidopterans (butterflies and moths). One quarter of his research is published in the journals *Nature*, *Science*, *Cell*, and *PNAS*. He has received \$910,900.00 in total funding, most of which came from the NSF and NIH. He research-mentored 106 undergraduate and 7 graduate (3 PhD and 4 MSc) students. Dr. Werner also discovered a new fruit fly species, which he named after his student Tessa Steenwinkel, who won 9 research awards (e.g., the Barry Goldwater Fellowship and the NSF Graduate Research Fellowship) and published 15 articles/books under his mentorship. The newly discovered species is called *Amiota tessae*. Furthermore, Dr. Werner is the founder of the open-access book series "The Encyclopedia of North American Drosophilids", which serves the *Drosophila* research community, teachers, and students with currently two published volumes and nearly 10,000 worldwide downloads. These books transformed two campus libraries (U. of Rochester, NY and Michigan Tech) into open-access book publishers, promoting science and education at no cost.

Dr. Werner has published most of his papers in the area of molecular biology. He uses various fruit fly species (*Drosophila*) as organisms for his diverse research projects. His recent research efforts have shed light on the questions of how animal color patterns are encoded in DNA, how they develop during the life of an organism, and how they evolve over time to create diverse species. He also studies how some fruit fly species can tolerate a toxin in their diet that is 30 times more toxic than cyanide: the mushroom toxin alpha-amanitin. He discovered that the fruit fly genes that decorate the fruit fly bodies with spots and stripes also exist in humans, where they cause cancer when their regulation becomes disturbed. Dr. Werner also found that the genes that make fruit flies resistant to mushroom toxins exist in humans as well, where they play roles in many diseases including cancer, obesity, type 2 diabetes, depression, and neurodegenerative diseases.

Dr. Werner has also recently published two e-books about the natural history of the Midwestern and Northeastern (Volume 1) and Southeastern (Volume 2) fruit fly species. The books cover more than 100 species and strive to facilitate identification of the species in these regions and provide remarks on interesting aspects of their biology and suggestions for future research on them. The books are intended for researchers, teachers, and students wishing to discover the diversity of fruit flies. A third book about the fruit flies of the Northwest is an ongoing project in his lab. Dr. Werner has also published three educational books for school children with his MSC student Molly Fitzgerald, as part of a Special Topics in Biology class.

Service

Dr. Werner has chaired four departmental committees and was the director of the Graduate Program in Biological sciences as well as the director of the Biological Honors Program. He also chaired an Early Career Management Committee. He further served on 9 Ph.D. committees, and 6 M.S. committees. He has also served as adviser for three student organizations at Michigan Tech. He volunteered as proposal reviewer for the NSF and for internal proposals at Michigan Tech. Dr. Werner has also judged student posters and talks both internally as well as at meetings of the Society for Developmental Biology. He has also given numerous public talks at schools and libraries about growing up in East Germany and about the butterflies and moths of northern Michigan.

Recent and Significant Publications.

* = my undergraduate student, ** = my graduate student *** = corresponding author

Murugesan, S.N., Connahs, H., Matsuoka, Y., das Gupta, M., Huq, M., Gowri, V., Monroe, S., Deem, K.D., **Werner, T.**, Tomoyasu, Y., Monteiro, A. (2022) Butterfly eyespots evolved via co-option of the antennal gene-regulatory network. *PNAS* 119(8), e2108661119|

Kokate, P.**, Smith, M.*, Hall, L.*, **Werner, T.***** (2022) Inter- and intra-specific variation in mycotoxin tolerance: A study of four *Drosophila* species. *Ecol Evol* 12(7), p. e9126.

Dion, W.A., Steenwinkel, T.E.* , **Werner, T.***** (2021) From *Aedes* to *Zeugodacus*: A review of dipteran body coloration studies regarding evolutionary developmental biology, pest control, and species discovery. *Curr Opin Genet Dev* 69, 35-41.

Dion, W.A.** , Shittu, M.O.** , Steenwinkel, T.E.* , Raja, K.K.B.** , Kokate, P.P.** , **Werner, T.***** (2020) The modular expression patterns of three pigmentation genes prefigure unique abdominal morphologies seen among three *Drosophila* species. *Gene Expr Patterns* 38, 119132.

Zhang, Y., Xia, S., Mikesell, L., Steenwinkel, T.E.* , Whisman, N., Medford, J., Wan, S., Tajiri, M., Luck, R.L., **Werner, T.*****, Liu, H. (2020) Ratiometric detection of glutathione using a near-infrared fluorescent probe based on disulfide linkage rupture between a FRET coumarin donor and a near-infrared rhodamine acceptor. *Chembiochem* 22 (13), 2282-2291.

Werner T., Koshikawa S., Williams T.M., Carroll S.B. (2010) Generation of a Novel Wing Color Pattern by the Wingless Morphogen. *Nature*, 464 (7292), 1143-1148. (Cover)

INFORMATION SHEET FOR BOARD OF TRUSTEES

Christo Z. Christov
Michigan Technological University

Christo Z. Christov, who is currently an associate professor of chemistry with tenure in the Department of Chemistry in the College of Sciences and Arts, is being considered for promotion to professor of chemistry with tenure in the Department of Chemistry in the College of Sciences and Arts.

Academic Degrees:

Ph.D.	2003	Bulgarian Academy of Sciences, Sofia, Bulgaria
M.S.	1995	University of Sofia, Sofia, Bulgaria

Professional Record:

2021-present	Associate Professor with tenure, Department of Chemistry, Michigan Technological University, Houghton, MI
2017 – 2021	Associate Professor (without tenure), Department of Chemistry, Michigan Technological University, Houghton, MI
2014 – 2017	Associate Professor (upper level), Northumbria University, Newcastle-upon-Tyne, UK
2011-2014	Associate Professor, Northumbria University, Newcastle-upon-Tyne, UK
2010-2011	Assistant Professor, Northumbria University, Newcastle-upon-Tyne, UK
2010-2013	Visiting Scholar and Marie Curie Fellow, Stanford University, CA, USA
2005-2010	Postdoctoral Researcher, Bristol University, UK; Sussex University, UK; and Autonomous University of Barcelona, Spain
2003-2005	Assistant Professor, Bulgarian Academy of Sciences, Bulgaria; Marie Curie Fellow & Visiting Professor at University Jaime I, Castellon, Spain

Summary of Accomplishments:

• Teaching

Dr. Christov has actively contributed to the undergraduate teaching mission of the Department of Chemistry by delivering the CH3510 Physical Chemistry I, CH3520 Physical Chemistry II and CH3521 Physical Chemistry Labs courses. In 2020 he was acknowledged by the Provost for his excellent job managing the transition to remote teaching. Dr. Christov has also developed new courses in Biomolecular Simulations/Molecular Modeling and Bioinorganic Chemistry for graduate and upper division students. In addition, Dr. Christov is contributing to expanding and updating the BS program in Computational Chemistry and Chemical Informatics. His efforts have significantly contributed to graduate and undergraduate education in chemistry at Michigan Tech.

• Research/Scholarly Activity

Dr. Christov uses computational methods to understand reactions of enzymes, especially enzymes that contain iron. He works closely with experimentalists to interpret their results and propose new experimental strategies. This work has practical applications in drug design, biomedicine, biotechnology, and synthetic biology. His tools are a combination of multilevel modelling methods based on quantum mechanics, molecular dynamics, and combined techniques. These studies reveal enzyme reaction mechanisms and the role of the dynamics. They provide insights for new enzyme inhibitors that could be used as drugs. Dr. Christov was awarded two NSF grants for investigating iron-containing enzymes that

produce ethylene and a NIH grant on iron-containing histone-modifying enzymes involved in epigenetics. Dr. Christov's research is published in top research journals such as ACS Catalysis, ACS Central Science and Chemical Science. He is currently supervising four Ph.D. students in the chemistry department.

- Service

Dr. Christov has served as a member of the Undergraduate Program Committee (UPC) in the chemistry department, where he focused on improving the BS program in Cheminformatics, including changing its name to "Computational Chemistry and Chemical Informatics". He serves as a member of five Ph.D. and MS advisory committees and was a member of the University-wide Data Revolution and Sensing Task Force. Dr. Christov serves as a peer reviewer for journals of the American Chemical Society, Royal Society of Chemistry, and Elsevier. He has edited or co-edited eight volumes of the prestigious scientific serials *Advances in Protein Chemistry and Structural Biology*, and has edited multiple special issues and topical collections of the *International Journal of Molecular Sciences*. Dr. Christov served on prioritization panels for the Engineering and Physical Sciences Research Council (EPSRC) and as a reviewer for the Biotechnology and Biological Sciences Research Council and the Fulbright Commission.

- Recent and Significant Publications/Exhibitions/Performances/Etc.

1. S.S. Chaturvedi, B. J. S. Rifayee, S.O. Waheed, J. Wildey, C. Warner, C. J. Schofield, T.G. Karabencheva-Christova and **C.Z. Christov** (2022) Can Second Coordination Sphere and Long-Range Interactions Modulate Hydrogen Atom Transfer in a Non-Heme Fe(II) Dependent Histone Demethylase?, *JACS Au*, 2, 2069-2086.
2. V. S. Alfaro, S. O. Waheed, H. Palomino, A. Knorrscheidt, M. Weissenborn, **C. Z. Christov** and N. Lehnert (2022) YfeX – A New Platform for Carbene Transferase Development with High Intrinsic Reactivity, *Chemistry – A European Journal*, e202201474.
3. S. O. Waheed, A. Varghese, S. S. Chaturvedi, T. G. Karabencheva-Christova, and **C. Z. Christov** (2022) How Human TET2 Enzyme Catalyzes the Oxidation of Unnatural Cytosine Modifications in Double-Stranded DNA. *ACS Catalysis*, 12:5327-5344.
4. R. Ramanan, S. O Waheed, C. J. Schofield and **C.Z. Christov** (2021) What is the Catalytic Mechanism of Enzymatic Histone N-Methyl Arginine Demethylation and Can It be Influenced by an External Electric Field? *Chem. Eur. J.* 27, 11827-11836. Selected for a Front Cover and a Cover Profile
5. S. Waheed, S. Chaturvedi, T. Karabencheva-Christova and **C.Z. Christov** (2021) Catalytic Mechanism of Human Ten-Eleven Translocation -2 (TET2) Enzyme: Effects of Conformational Changes, Electric Field and Mutations, *ACS Catalysis*, 11,3877-3890.
6. S. Chaturvedi, R. Ramanan, J. Hu, R. Hausinger and **C.Z. Christov**. (2021) Atomic and Electronic Structure Determinants Distinguish between Ethylene Formation and L-Arginine Hydroxylation Reaction Mechanisms in the Ethylene-Forming Enzyme, *ACS Catalysis*, 11,1578-1592.
7. R. Ramanan, S. S. Chaturvedi, N. Lehnert, C. J. Schofield, T. G. Karabencheva-Christova and **C. Z. Christov** (2020) Catalysis by the JmjC Histone Demethylase KDM4A Integrates Substrate Dynamics, Correlated Motions and Molecular Orbital Control. *Chemical Science*, 11, 9950-9961.
8. S. O. Waheed, R. Ramanan, S. S. Chaturvedi, N. Lehnert, C. Schofield, **C. Z. Christov** and T. G. Karabencheva-Christova* (2020) Role of Structural Dynamics in Selectivity and Mechanism of Non-heme Fe(II) and 2-Oxoglutarate-Dependent Oxygenases Involved in DNA Repair. *ACS Central Science*, 6, 795–814. Selected for supplementary cover.
9. S. S. Chaturvedi, R. Ramanan, N. Lehnert, C. J. Schofield, T. G. Karabencheva-Christova, and **C. Z. Christov** (2020) Catalysis by the Non-Heme Iron(II) Histone Demethylase PHF8 Involves Iron Center Rearrangement and Conformational Modulation of Substrate Orientation. *ACS Catalysis*, 10, 1195-1209

INFORMATION SHEET FOR BOARD OF TRUSTEES**ASHUTOSH TIWARI****Michigan Technological University**

Ashutosh Tiwari, who is currently an associate professor of chemistry with tenure in the Department of Chemistry in the College of Sciences and Arts, is being considered for promotion to professor of chemistry with tenure in the Department of Chemistry in the College of Sciences and Arts.

Academic Degrees:

Ph.D.	1999	Jawaharlal Nehru University (JNU), New Delhi, INDIA
M.S.	1993	Jamia Millia Islamia (JMI), New Delhi, INDIA.
B.S.	1991	All-India Institute of Medical Sciences (AIIMS), New Delhi, INDIA.

Professional Record:

2015 – present	Associate Professor (tenured), Department of Chemistry, Michigan Technological University (MTU), Houghton, MI.
2009 – 2015	Assistant Professor, Department of Chemistry, MTU, Houghton, MI.
2005 – 2009	Research Assistant Professor, Department of Neurology, University of Massachusetts Medical School (UMMS), Worcester, MA.
2003 – 2005	Instructor, Department of Neurology, UMMS, Worcester, MA.
2000 – 2003	Postdoctoral Fellow, Department of Neurology, UMMS, Worcester, MA

Summary of Accomplishments:

- Teaching

At Michigan Tech Dr. Tiwari designed and implemented a new course, Biophysical Chemistry (CH3540) which bridges the gap between Chemistry, Physics, and Biology, and developed a related laboratory course (CH3541) that complements theory. He designed a professional development course (CH3130) that focuses on oral and written communication skills. He also developed two graduate level courses. The CH6790 course provides students a strong foundation in physical and thermodynamics principles of folding and stability of globular proteins and their role in health and disease. And, a graduate level lab course (BMB6030) wherein students learn techniques routinely employed in Tiwari research laboratory. To generate enthusiasm, Dr. Tiwari teaches topics with historical perspective including use of original articles (in addition to textbook). He also brings relevant examples from his research as well as latest cutting-edge research articles to present facts that resonate with each distinct audience.

To keep up with technological innovations in teaching, Dr. Tiwari successfully completed the 'ETOM Online Teaching Certification Course' and used this training to redesign the courses he teaches regularly (CH3540 and CH4710). Now, he has redesigned his courses for 'flex' synchronous teaching and simulcasts his lectures live via Zoom giving option to students to attend classes remotely if needed. Students also have the opportunity to review teaching materials on Canvas and complete assignments and quizzes online.

- Research/Scholarly Activity

Dr. Tiwari is a broadly trained protein chemist and cell biologist with 20+ years of research experience. He has developed a vibrant research program in the area of protein aggregation diseases with special emphasis on age related neurodegenerative disorders (e.g. Amyotrophic Lateral Sclerosis, Alzheimer's and Parkinson's disease). Tiwari laboratory is applying unique biochemical and biophysical approaches to characterize the inherent vulnerability and instability of proteins associated with different

neurodegenerative diseases. The long-term research goal of Tiwari lab is to understand the link between distinctly aggregated protein structures and their associated cellular toxicity, and the role it may play in neurodegenerative diseases. Dr. Tiwari's research has been well received by the scientific community, and 10 out of total 40 peer reviewed articles that he has published to date, have been cited more than 100 times (Google Scholar H index of 31) with an average citation of 70 times/article, indicating high impact. Dr. Tiwari has trained and mentored a postdoctoral fellow, six PhD students, two Master's students, and multiple undergraduate students (20+). In addition, he has also served on several doctoral and master's committees. His students have won awards at local as well as national meetings. While at Michigan Tech, Dr. Tiwari has received a total external funding of \$1.5 M from foundation, alumni, and NIH; of which he received \$700 K as PI and ~\$800 K as co-PI.

- Service

Dr. Tiwari has served on and chaired several committees that are very important to the mission and goals of the university, college, and department. For example, he served on the presidential search committee, university biosafety committee, graduate faculty council, university stores committee, H-STEM complex planning committee, faculty search committee, chair search committee, executive committee, graduate programs committee and others. Dr. Tiwari served as the director of interdisciplinary graduate program in biochemistry and molecular biology from 2015 to 2018 and was instrumental in spearheading the program, developing operational documents, filling in core-teaching requirements, by working closely with faculty colleagues and chairs of departments across the campus. He has contributed to public service by acting as faculty host for prospective students, organized a student poster session, served as reviewer for internal research proposals, and summer undergraduate research proposals at Michigan Tech. As part of his service to the scientific community at large, he has served as judge for poster competitions, as reviewer for several journals including American Chemical Society and Royal Society of Chemistry journals, and serves as an editorial board member for Scientific Reports (Nature publishing group). In addition, he has served on the scientific review panels of a foundation (ALS Association) as well as federal agencies (NIH, NSF) to review investigator-initiated research proposals.

- Recent and Significant Publications/Exhibitions/Performances/Etc.

Adhikari R, Yang M, Saikia N, Dutta C, Alharbi WFA, Shan Z, Pandey R, **Tiwari A**. Acetylation of A β 42 at Lysine 16 Disrupts Amyloid Formation. ACS Chem Neurosci. 2020 Apr 15;11(8):1178-1191. PubMed PMID: 32207962.

Mazi W, Adhikari R, Zhang Y, Xia S, Fang M, Luck RL, Tajiri M, **Tiwari A**, Tanasova M, and Liu H. Fluorescent Probes with High pKa Values Based on Traditional, Near-infrared Rhodamine, and Hemicyanine Fluorophores for Sensitive Detection of Lysosomal pH Variations. Methods (2019) 168: 40-50.

Dorh N, Zhu S, Dhungana KB, Pati R, Luo FT, Liu H, **Tiwari A**. BODIPY-Based Fluorescent Probes for Sensing Protein Surface-Hydrophobicity. Sci Rep. 2015 Dec 18;5:18337. PubMed PMID: 26679512; PubMed Central PMCID: PMC4683377.

Yang M, Dutta C, **Tiwari A**. Disulfide-bond scrambling promotes amorphous aggregates in lysozyme and bovine serum albumin. J Phys Chem B. 2015 Mar 12;119(10):3969-81. PubMed PMID: 25689578.

INFORMATION SHEET FOR BOARD OF TRUSTEES**Zhiying Shan****Michigan Technological University**

Zhiying Shan, who is currently an Associate Professor of Physiology with tenure in the Department of Kinesiology and Integrative Physiology (KIP) in the College of Sciences and Arts, is being considered for promotion to Full Professor of Physiology with tenure in the KIP Department in the College of Sciences and Arts.

Academic Degrees:

Ph.D.	2004	Nankai University, Tianjin, China
M.S.	1989	Shandong University, Jinan City, Shandong Province, China
B.S.	1986	Liaoning Normal University, Dalian City, Liaoning Province, China

Professional Record:

2019-Present	Associate Professor, KIP Department, Michigan Technological University
2013-2019	Assistant Professor, KIP Department, Michigan Technological University
2010-2013	Research Assistant Professor, Department of Physiology and Functional Genomics, University of Florida, Gainesville, FL
2005-2010	Postdoctoral Associate, Department of Physiology and Functional Genomics, University of Florida, Gainesville, FL
2004-2005	Postdoctoral Associate, Department of Molecular Genetics and Microbiology, University of Florida, Gainesville, FL
1997-2004	Research Associate Professor, Tianjin Medical University, Tianjin, China
1993-1997	Research Assistant Professor, Tianjin Medical University, Tianjin, China
1989-1992	Research Assistant, Chinese Medicine Institute of Liaoning Province, China

Summary Accomplishments:**Teaching:**

During her time at Michigan Tech, Dr. Shan has taught 7 courses, including Molecular Physiology [KIP5510], Molecular Exercise Physiology [KIP4120], Advanced Cell Biology [BL4370/BL5371], Advanced Molecular Biology [BMB6020], Essential Biochemistry (KIP2700), KIP Graduate Seminar [EH5920], and co-instructed Modern BMB Laboratory (BMB6030) with 3 other instructors. She also regularly advises both undergraduate and graduate students, as well as other trainees performing research in Cardiovascular Physiology and Neuroscience. Since joining Michigan Tech, she has supervised 10 undergraduate students, 1 visiting scholar, and two postdoctoral associates. She also mentored 7 graduate students and supervised 3 visiting graduate students. Eight of those students have completed their degrees (5 masters including one visiting master student, 3 PhD including two international visiting Ph.D students). She currently serves as a committee chair/co-chair for 2 PhD students. All students under Dr. Shan's guidance have presented at national conferences in varying capacities, and a few have also received awards as well as direct funding for their projects.

Research

Dr. Shan has active research programs in the area of central control of blood pressure and cardiovascular function. Her current study primary focuses on identifying neural mechanisms underlying hypertension and exploring new therapeutic target for hypertension treatment. Her study has been extensively supported by the National Institutes of Health (NIH) and the American Heart Association (AHA). Since joining Michigan Tech, Dr. Shan has secured ~\$2.7 million external research funding including a NIH R01 Grant (\$1,665,903, 04/2022-03/2026), two NIH R15 Grants (459,000, 07/2020-06/2023; \$433,814, 08/2016-07/2020), and one carried over AHA Scientist Development Grant (\$149,623, 01/2014-07/2016) as a principle investigator (PI), and ~\$2.1 M of the external funding secured after she has been tenured. In addition, she is a Co-PI in Dr. Qinghui Chen's NIH R15 grant (\$459,000, 09/2019-08/2023). She also served as a consultant in a NIH R15 (PI, Dr. Chen at MTU) and a NIH R01 Grant (PI: Laura E. O'Dell at the University of Texas). Dr. Shan's research provides our students an opportunity to conduct human disease study and results in 45 publications (19 journal articles/26 conference abstracts) and more than 50 presentations since joining MTU, of which, 13 publications (8 articles/5 conference abstracts) and 9 presentations were published/given after she has been tenured in 2019.

Service

Dr. Shan has committed to numerous services both in academia and University Committees. She has been an ad hoc reviewer for national and International funding agency including the NIH IVPP (Integrative Physiology and Pathology) Study Section (2022 June & October), and Israel Science Foundation (2022). She is an external reviewer for faculty promotion of California Health Science University (2022). She has been serving in the editorial board for three scientific Journals including "Cellular and Molecular Neurobiology" (2014-present), "International Journal of Biochemistry & Physiology" (2018-present), and Frontiers in Physiology (2022-present). She serves as a Guest Associate Editor for "Frontiers in Physiology" in 2022. In addition, she reviewed 59 manuscripts for 19 scientific journals including "Circulation Research" and "Hypertension". Furthermore, she has served on numerous Department and University Committees such as KIP New Faculty Search Committee, KIP Curriculum Committee, KIP Tenure and Promotion Committee and University Early Career Management Team. She has been a reviewer for MTU Summer Undergraduate Research Fellowship and the MTU Research Excellence Fund (REF), She also served in Michigan Tech REF review Panel, etc.

Recent and Significant Publications

Dr. Shan has **45** publications including **19** journal articles and **26** conference abstracts since joining MTU. Example papers are listed below. **She serves as the senior author in papers 2-4 and 6-10:**

1. Orexin, sleep, sympathetic neural activity and cardiovascular function. Hypertension, 2022 (PMID: 36148653)
2. Activation of Orexin System Stimulates CaMKII Expression. Front Physiol. 2021.
3. TNF α Triggers an Augmented Inflammatory Response in Brain Neurons from Dahl Salt-Sensitive Rats Compared with Normal Sprague Dawley Rats. Cell Mol Neurobiol, 2021
4. Activation of Orexin 1 receptors in the paraventricular nucleus contributes to the development of DOCA-salt hypertension through regulation of vasopressin Front. Physiol. 2021.
5. Overexpression of corticotropin-releasing factor in the nucleus accumbens enhances the reinforcing effects of nicotine in intact female versus male and ovariectomized female rats. Neuropsychopharmacology 2020, 45, 394-403.
6. Expression of proinflammatory cytokines is upregulated in the hypothalamic paraventricular nucleus of Dahl salt-sensitive hypertensive rats. Front Physiol 9, 104, 2018
7. Orexin A increases sympathetic nerve activity through promoting expression of proinflammatory cytokines in Sprague-Dawley rats. Acta physiologica, 2017
8. The Orexin System and Hypertension. Cell Mol Neurobiol, 2017
9. Increased Activity of the Orexin System in the Paraventricular Nucleus Contributes to Salt- Sensitive Hypertension. Am J Physiol Heart Circ Physiol, 2017
10. Activation of the (pro)renin receptor in the paraventricular nucleus increases sympathetic outflow in anesthetized rats. Am J Physiol Heart Circ Physiol. 309(5):H880-7, 2015

INFORMATION SHEET FOR BOARD OF TRUSTEES

Dr. Don Lafreniere is currently Department Chair of the Department of Social Sciences and an Associate Professor of Geography and Geographic Information Science in the Department of Social Sciences and is being considered for promotion to full professor.

Academic Degrees:

Ph.D., Geography	2014	University of Western Ontario, London, Canada
B.S., Geography	2009	Eastern Michigan University, Ypsilanti, MI
B.S, History	2009	Eastern Michigan University, Ypsilanti, MI

Professional Appointments:

2021 - Present	Department Chair, Department of Social Sciences, MTU
2018 - Present	Associate Professor of Geography and GIS, Department of Social Sciences, MTU
2015 - Present	Director, Geospatial Research Facility, MTU
2014-2018	Assistant Professor of Geography and GIS, Department of Social Sciences, MTU
2014-2014	Adjunct Lecturer, Department of Geography, University of Western Ontario
2011-2014	Vanier Canada Scholar, Social Science and Humanities Research Council held at University of Western Ontario

Summary of Accomplishments:

Teaching and Advising: Dr. Lafreniere teaches a suite of courses at the introductory and advanced levels for both undergraduates and graduate students in geographic information science (GIS). These courses serve among the core methodological training for several degree programs in the Departments of Social Sciences, Geological and Mining Engineering and Sciences, and Civil, Environmental, and Geospatial Engineering. Lafreniere also regularly teaches courses in human geography and urban geography. He integrates original research, GIS and other spatial technologies into all of his classes. For example, a recent course worked with local school districts to research how children commute to school and develop plans to improve safe routes and promote healthy active transportations methods to school. These teaching approaches earned him the Dean’s Teaching Showcase Award in 2016 and 2020, and the 2017 Jackson Center for Teaching and Learning Innovative/Out of Class Teaching Award.

Lafreniere is an active graduate and undergraduate advisor. He has graduated 5 PhD students and has 2 in progress. He has served on the committee of 6 other PhD students to date. He has graduated 2 MS students and has 1 in progress, and has served on 8 MS degree committees. He has advised over 60 undergraduate students on research projects. He regularly sponsors SURF and Pavlis Honors College Undergraduate Research Internship students.

Research/Scholarly Activity: Dr. Lafreniere’s overall research program is centered on advancing geospatial methodologies that allow us to better interrogate the relationships between populations and environments. His expertise is in spatio-temporal big data analysis. He has published 30 peer-reviewed articles, books, and book chapters with 3 others in review. He has published on topics including children’s health, segregation, 3D modelling, big data GIS, and environmental history. He has 6 non-referred publications including a book review and several cartographic works. A recent paper modelled how K-12 schools were vectors of disease transmission during the 1918 influenza pandemic and how we can apply this modelling to modern pandemics like COVID-19.

To date, Dr. Lafreniere has secured \$8.1 Million in research funding as PI or Co-PI. He has secured funding from a wide range of sources including the National Science Foundation, National Endowment for the Humanities and the Social Science and Humanities Research Council.

Dr. Lafreniere’s most prominent project is using citizen science and GIS to create a big data set of historical environments in the Keweenaw. This project is engaging a nation-wide heritage community in understanding environmental, health, and social change using easy-to-use mapping tools. Known publicly as the Keweenaw Time Traveler, to date over 60,000 unique users have contributed over 800,000 classifications and stories on the system at www.keweenawhistory.com. Dr. Lafreniere is invited all over the world to help other communities make similar

projects, currently projects inspired by the Keweenaw Time Traveler are being built in New York City, Madrid, Copenhagen, New Orleans, and Detroit. His research connects directly to the strategic goals of his Department and College by increasing capacity in research and teaching in the geospatial sciences, health, and sustainability and supports MTU's strategic goals to have transformative educational experiences and scholarship that addresses problems of social significance.

Service: Dr. Lafreniere serves as the Department Chair of the Department of Social Sciences. Since assuming the role in summer 2021, he has led the development of a new B.S degree in Policy & Community Development and new M.S in Sustainable Communities and has expanded the department's offerings of faculty-led study abroad programs for all of our MTU students to include study opportunities in Costa Rica, England, Mexico, Wales, and a trip across America on Amtrak.

Dr. Lafreniere has also served as the Director of the Geospatial Research Facility (GRF) since 2015. The GRF has 4 full-time Geospatial Research Scientists and several student staff members. The GRF directly supports 55 MTU faculty and research staff from across 14 different academic units on campus who use geospatial methods or tools in their research, teaching, and outreach. The GRF has supported sponsored research projects last year totally over \$9.2 Million.

Dr. Lafreniere has been serving the College and Department as a member of the Essential Education implementation committee, regularly serves on faculty and staff search committees, and regularly reviews grants for the various REF grant programs.

He serves his intellectual community as a member of the Executive Committee of the Social Science History Association and sits on the editorial boards for two of the top journals in his field. He has reviewed over 40 articles for various journals and serves our community as a Scout leader and as a Geomentor for local youth and teachers.

Recent and Significant Publications/Exhibitions/Performances/Etc. (* = student collaborator)

*Stone, T., Lafreniere, D., and *Hildebrandt, R. 2022. Deep Mapping the Daily Spaces of Children and Youth in the Industrial City. *Historical Methods: A Journal of Quantitative and Interdisciplinary History*, <https://doi.org/10.1080/01615440.2022.2080135>

Lafreniere, D., *Stone, T., *Hildebrandt, R., Sadler, R., *Madison, M., Trepal, D., *Spikberg, G., *Juip, J. 2021. Schools as Vectors of Infectious Disease Transmission During the 1918 Influenza Pandemic. *Cartographica: The International Journal for Geographic Information and Geovisualization*, Vol. 56, no. 1: 51-63.

Lafreniere, D., *Weidner, L., *Trepal, D., Scarlett, S., Arnold, J., Pastel, R., Williams, R. 2019. Public Participatory Historical GIS. *Historical Methods: Journal of Quantitative and Interdisciplinary History*, Vol. 52, no. 3: 132-149.

Gregory, I., Debats, D., and Lafreniere, D, eds. 2018. *The Routledge Companion to Spatial History*. London: Routledge, ISBN: 978-1138860148

Sadler, R., and Lafreniere, D. 2017 Racist Housing Practices as a Precursor to Uneven Neighborhood Change in a Post-Industrial City. *Housing Studies*, Vol. 32, no. 2: 186-208.

INFORMATION SHEET FOR BOARD OF TRUSTEES

Chelsea Schelly is currently an associate professor of sociology in the Department of Social Sciences and is being considered for promotion to full professor.

Academic Degrees:

Ph.D. 2013 University of Wisconsin, Madison WI
 M.A. 2008 Colorado State University, Fort Collins CO
 B.A. 2005 University of Wisconsin, Madison WI

Professional Appointments:

2017 – present	Associate Professor of Sociology, Department of Social Sciences, Michigan Technological University
2013-2017	Assistant Professor of Sociology, Department of Social Sciences, Michigan Technological University

Summary of Accomplishments:

- **Teaching:** Dr. Schelly impacts students across campus by offering an undergraduate course in Science and Technology Studies each year and teaches core research and theory courses in undergraduate and graduate degree programs within the Dept. of Social Sciences. Dr. Schelly also consistently increases inclusive access to social sciences general education through online summer courses. Dr. Schelly’s excellence in instruction has been recognized by student evaluations in the top 10% of courses across the University. Dr. Schelly also contributes to educational innovations through contributions to new degree programs in Sustainability Science & Society (BS) and Sustainable Communities (MS).
- **Research/Scholarly Activity:** Dr. Schelly is an internationally recognized expert in the sociology of socio-technological transitions. Since receiving tenure in 2017, Dr. Schelly has received three externally sponsored research grants as Principal Investigator (PI) and an additional six awards as co-PI, totaling over \$3 million. As of fall 2022, Dr. Schelly has six collaborative proposals under review. Since receiving tenure in 2017, Dr. Schelly has published two co-edited books (one as lead editor), 30 sole or co-authored peer-reviewed academic papers, 14 co-authored book chapters, and 13 other publications including reports, reviews, and perspectives pieces. Much of Dr. Schelly’s research supports an active profile of graduate student advising. Dr. Schelly currently advises four MS and four PhD students (three are co-advised). Five of these students are funded by Dr. Schelly’s external awards. Dr. Schelly is a core contributor to the strategic plans for increasing student engagement with sustainability and community research partnerships in the Dept. of Social Sciences and the College of Sciences and Arts, as well as having affiliate faculty status in the College of Forest Resources and Environmental Science.
- **Service:** Dr. Schelly is the lead of the Tech Forward Initiative on Sustainability & Resilience, making significant contributions to campus leadership in sustainability. Dr. Schelly has leadership roles in the World Social Science Association and the International Association for Society and Resource Management. Dr. Schelly has been recognized internationally through a Fulbright Research Chair Award and is currently hosting a Fulbright Scholar at Michigan Tech.
- **Recent and Significant Publications/Exhibitions/Performances/Etc. (* = student collaborator)**

Tiwari, S.*, Schelly, C., et al. (Forthcoming). Conceptualizing Resilience: An Energy Services Approach. *Energy Research and Social Science*

Pascaris, A.*, Schelly, C., Rouleau, M., Pearce, J. (2022). Do Agrivoltaics Improve Public Support for Solar? A Survey on Perceptions, Preferences, and Priorities. *Green Technology, Resilience, and Sustainability* 2(8)

Tiwari, S.*, Schelly, C., Sidortsov, R. (2021). Developing a Legal Framework for Energy Storage Technologies in the U.S: The Case of Pumped Storage Underground Hydro. *The Electricity Journal* 34 (10)

Brosemer, K.*, Schelly, C., et al. (2020). The Energy Crises Revealed by COVID: Intersections of inequality, Indigeneity, and health. *Energy Research and Social Science* 68 (cited 91 times as of 11/09/22)

Schelly, C., et al. (2020). Energy Policy for Energy Sovereignty: Can policy tools enhance energy sovereignty? *Solar Energy* 205: 109-112. (cited 35 times as of 11/09/22)

Schelly, C., and Banerjee, A.*, Eds. (2018). *Environmental Policy and Pursuit of Sustainability*. Routledge.

VIII-D. EMERITUS RANK

Recommendation for the granting of faculty emerita/emeritus status originates within the retiree's academic department and proceeds through the respective college. Once approved, the recommendation is presented to the Provost, and if successful, to the President of the University for presentation to the Board of Trustees.

RECOMMENDATION: It is recommended that the Board of Trustees approves the following emerita/emeritus appointments:

Dr. Brian Fick, Professor Emeritus, Department of Physics

Dr. Sarah Green, Professor Emerita, Department of Chemistry

Dr. Chandrashekhar Joshi, Professor Emeritus, Department of Biological Sciences

Dr. Thomas Merz, Professor Emeritus, College of Business

Dr. Jennifer Slack, Professor Emerita, Department of Humanities

Dr. Bryan Suits, Professor Emeritus, Department of Physics



Department of Physics
Fisher Hall 118

906.487.2086 phone
906.487.2933 fax

TO: Michigan Tech Board of Trustees

DATE: March 1, 2023

FROM: Ravindra Pandey, Chair

SUBJECT: Recommendation for Emeritus Status - Fick

COPIES:

With support of the Department of Physics Personnel Committee, it is requested that the following recommendation be presented to the Michigan Technological University Board of Trustees for action to name Dr. Brian E. Fick *Professor Emeritus* upon his retirement on May 3, 2023.

History of Employment and Accomplishments

Dr. Brian Fick joined the Department of Physics on August 16, 2004, as an Associate Professor without tenure. He attained full Professor in June 2008.

Dr. Fick has received continuous funding from the Department of Energy (DoE) from 2004 to 2016 for his research in cosmic rays. Dr. Fick is a founding member of the Pierre Auger Observatory collaboration and an active member of the HAWC collaboration. He has published 200 research papers in peer-reviewed scientific publications that have garnered him 20,000 citations, and have presented his work at national and international conferences. He has been invited to present seminars and colloquiums at several universities and national and international conferences and has given newspaper, radio, and television interviews. Dr. Fick served as a peer reviewer of DoE grant proposals and for *Nuclear Instruments and Methods* and *Astroparticle Physics* journals. Dr. Fick was the recipient of the George Southgate Fellowship from the University of Adelaide and received the President's International Fellowship Initiative Certificate from the Chinese Academy of Science in 2018. He was co-recipient of Michigan Tech's Research Award in 2010 with Dr. Nitz, a physics professor, and colleague. Dr. Fick graduated four Ph.D. graduate students during his tenure.

Thank you for your favorable consideration of naming Dr. Brian E. Fick Professor Emeritus.

Approved

Ravindra Pandey Digitally signed by Ravindra Pandey 3/1/23
Date: 2023.03.01 14:38:36 -05'00'
Department of Physics, Chair Date

David Hemmer Digitally signed by David Hemmer
Date: 2023.03.01 17:58:31 -05'00'
College of Sciences Arts, Dean Date

Andrew J. Storer Digitally signed by Andrew J. Storer
Date: 2023.03.10 16:58:58 -05'00'
Provost Vice President for Academic Affairs Date

Richard J. Koubek Digitally signed by Richard J. Koubek
Date: 2023.03.13 07:17:40 -05'00'
President Date



TO: Michigan Technological University Board of Trustees
FROM: Shiyue Fang and Rudy Luck
DATE: 2-21-2023
SUBJECT: Recommendation for Emeritus Status

The faculty of the Chemistry Department voted unanimously between February 17-21, 2023 via email (attached) to request that the Michigan Technological University Board of Trustees name Professor Sarah A. Green as **Professor Emerita** upon her retirement on June 30, 2023.

Professor Sarah Green joined the chemistry department in 1994 as an Assistant Professor moving up the ranks to Associate Professor in 2000 and then Chair from 2004-2006 and Professor and Chair from 2006-2013. She has been serving as Interim Chair since 2020.

From 1997 to 2002 Professor Green coordinated the Keweenaw Interdisciplinary Transport Experiment in Lake Superior, known as KITES, which spawned further institutional, state, and federal investments in Great Lakes research at Michigan Tech. In addition to Great Lakes projects, Dr. Green’s research career has touched on carbon cycling, tobacco smoke, sensors, stamp sands, remote sensing, photochemistry in snow, quagga mussels, and climate communication. In 2013-14 she served as a Jefferson Science Fellow in the U.S. State Department, where she was a Senior Science Advisor with a focus on environmental issues in the Asia Pacific region and was awarded Certificate of Appreciation for contributions to reduction of wildlife trafficking. Other awards include the Chandler-Misener Award from the International Association for Great Lakes Research and “Best Article of 2013” from Environmental Research Letters. Dr. Green was honored as a Distinguished Lecturer at the Michigan Tech Research Forum in February 2018 and was awarded Michigan Tech’s inaugural Faculty Sustainability Award in April 2022.

Professor Green obtained Observer status for Michigan Tech at the United Nations Framework Convention on Climate Change (UNFCCC) and has guided students to the international conferences on climate change: COP25 in Madrid (2019), COP26 in Glasgow (2021), and COP27 in Sharm El-Sheikh (2022).

Finally in addition to these noteworthy accomplishments, Professor Green has led the chemistry department with distinction for over 12 years. Her collegiality and fairness in guiding the department through difficult periods, her attention to detail in assigning teaching and committee duties, and her patience in serving as the person in the middle stuck between the faculty and administration will serve as a model to emulate for future chairs of this department.

Approved



Shiyue Fang and Rudy Luck

2-21-2023

Date



College Dean

3/3/2023

Date



Provost and Senior Vice President for Academic Affairs

March 10, 2023

Date



President

March 10, 2023

Date



Michigan Tech

OFFICE MEMO

TO: Michigan Technological University Board of Trustees

FROM: Biological Sciences

DATE: 4/3/2023

SUBJECT: Recommendation for Emeritus Status

The faculty of the Biological Sciences Department voted on 3/29/2023 to request that the Michigan Technological University Board of Trustees name Dr. C.P. Joshi as Professor Emeritus upon his retirement on June 30, 2023.

Dr. Joshi has over 40 years of professional experience. He started at Michigan Tech in 1996 and has held several different positions, the last one being Department Chair of Biological Sciences since 2013. He has a total 235 Life-Time research contributions with a total of \$9.40 million in grant support. He has 62 refereed journal papers, 18 refereed book chapters, 4 approved patents, 2 book co-editorships and 149 presentations. Among many achievements, he received an NSF CAREER award and was recognized by MTU with both the University Research Award and as a member of the Academy of Teaching Excellence. His many teaching, research and service contributions have been of great service to MTU.

Approved



 Department Chair/School Dean

4/5/2023

 Date



 College Dean

4/6/2023

 Date



 Provost and Senior Vice President for Academic Affairs

April 7, 2023

 Date



 President

4/7/23

 Date



Michigan Tech

OFFICE MEMO

TO: Michigan Technological University Board of Trustees

FROM: Dean Johnson, Dean, College of Business

DATE: **March 15, 2023**

SUBJECT: Recommendation for Emeritus Status

The faculty of the College of Business voted on November 11, 2022 to request that the Michigan Technological University Board of Trustees name Thomas Merz as Professor Emeritus upon his retirement on June 30, 2023.

Dr. Thomas Merz received his Ph.D. in Economics from the University of Pittsburgh in 1980. He joined Michigan Tech in 1980 as an Assistant Professor; he was promoted to Associate Professor in 1987 and to Full Professor in 1996. He served as Associate Dean of the School of Business and Economics from 2008 until 2018. He was a Visiting Research Fellow from 2006 to 2007 and an Adjunct Professor between 2009 and 2013 at Curtin University of Technology, Australia. He served as Mayor of Houghton city from 1996 to 2006.

Dr. Merz's research has been published in reputable journals such as the Journal of Urban Economics, Regional Science Perspectives, Journal of Economic Perspectives, Journal of Economics, and Journal of Economic Insight.

Dr. Merz's teaching has generated 12,811 Student Credit Hours from the winter quarter of 1994 through the fall semester of 2022. He was the School of Business and Economics Innovative Teaching Award winner in 1994 and 1996.

In a long and distinguished career, Dr. Merz served the College of Business and the university in various capacities. He received the Michigan Tech Distinguished Faculty Service award in 2014.

Approved

Department Chair/School Dean

3-15-2023

Date

College Dean

Date

Andrew J. Storer

Digitally signed by Andrew J. Storer
Date: 2023.03.21 16:27:55 -04'00'

Provost and Senior Vice President for Academic Affairs

Date

Richard J. Koubek

Digitally signed by Richard J. Koubek
Date: 2023.03.22 08:35:46 -05'00'

President

Date



Michigan Tech

Office Memo

Department of Humanities

Phone: (906) 487-2008

Fax: (906) 487-3559

TO: Michigan Technological University Board of Trustees

FROM: Scott Marratto, Chair - Department of Humanities

DATE: March 8, 2023

SUBJECT: Recommendation for Emerita Status

On November 2, 2022, the faculty of the Humanities Department voted on November 2, 2022, to request that the Michigan Tech Board of Trustees name Dr. Jennifer Slack as Professor Emerita upon her retirement on June 30, 2023.

Dr. Slack has been a faculty member at Michigan Tech since 1988. She is currently Distinguished Professor of Communication and Cultural Studies and has also served, since 2019, as the Director of the Institute for Policy, Ethics, and Culture. She was awarded a Faculty Fellowship through the Office of the Vice President for Research Development from 2020-23. Her scholarly work has appeared in many edited volumes and in preeminent journals in her field, including *Cultural Studies*, *Communication and Critical Cultural Studies*, *The Communication Review*, *Communication Theory*, and *Critical Studies in Mass Communication Research*. Her 2005 book *Culture and Technology: A Primer* (Peter Lang) was named Best Book of the Year by the National Communication Association. She was also awarded Outstanding Article of the Year, in 2008, by the National Communication Association.

Over the past 10 years, Dr. Slack has served on eleven graduate committees, including 8 as supervisor (5 PhD; 3 Master's). Particularly through her work as Director of IPEC, Dr. Slack has served as a distinguished leader among the faculty at Michigan Tech and we look forward to her continued involvement in the university community as Professor Emerita.

Approved

Department Chair/School Dean

03/8/23

Date

College Dean

3/9/2023

Date

Andrew J. Storer Digitally signed by Andrew J. Storer
Date: 2023.03.10 16:56:03 -05'00'

Provost and Senior Vice President for Academic Affairs

Date

Richard J. Koubek Digitally signed by Richard J. Koubek
Date: 2023.03.13 07:17:05 -05'00'

President

Date



Department of Physics
Fisher Hall 118

906.487.2086 phone
906.487.2933 fax

TO: Michigan Tech Board of Trustees

DATE: March 1, 2023

FROM: Ravindra Pandey, Chair

SUBJECT: Recommendation for Emeritus Status - Suits

COPIES:

With the support of the Department of Physics Personnel Committee, the following recommendation is requested to be presented to the Michigan Technological University Board of Trustees for action to name Dr. Bryan H. Suits *Professor Emeritus* upon his retirement on June 30, 2023.

History of Employment and Accomplishments

Dr. Bryan Suits joined the Department of Physics in Fall 1985 as a tenure-track Assistant Professor. In Fall 1989, he was appointed Associate Professor with tenure; in Fall 1998, he was promoted to full Professor. From 1990 to 1995, he served as Head of the Physics Department. He has also served as a representative to the faculty senate, graduate council, and many other MTU committees.

His research focused on high magnetic field nuclear magnetic resonance (NMR) to study materials, including icosahedral crystals, magnetic resonance imaging of materials, and, in collaboration with researchers at Argonne National Labs, studies of nanophase materials. In collaboration with scientists at the Naval Research Lab (NRL), he helped develop techniques to use the zero field techniques of Nuclear Quadrupole Resonance (NQR) as a means for materials detection and is a named inventor on five related patents. While at MTU, he was PI or Co-PI on grants totaling over 1.5M, and was a named contributor on other grants exceeding 0.8M. He is the author of more than 50 scientific journal articles. He served as principal advisor for 5 MS and 4 Ph.D. graduate degrees in Physics and served on numerous other graduate committees.

Very committed in the classroom, he was named to the MTU academy of teaching excellence and was awarded the MTU teaching award in 2007. He recently published two textbooks based on course material he developed at MTU – electronics for physics students and an introductory-level text about physics and music. He was an early adopter of online resources as part of course instruction, dating back to the 1990s, and more recently has developed multiple online courses. One of his innovative Physics demonstrations was given an award by the American Association of Physics Teachers (AAPT) at their 2009 meeting.

Formal Session of the Board of Trustees - Emeritus Rank

He served as associate editor of the journal Nanostructured Materials and is a regular reviewer for numerous other professional journals. He was named an Outstanding Reviewer for the European Journal of Physics, and a Trusted Reviewer by the Institute of Physics (IOP), their highest ranking for reviewers. He also served a term as a nationally elected councilor for the Physics and Astronomy division of the Council of Undergraduate Research (CUR). For several years he helped with the Rocket for Schools program out of Sheboygan, WI an outreach program largely aimed at high school students.

He was active with MTU's Keweenaw symphony orchestra for about 20 years. Most recently, his resurrection of a hand-written symphony by the well-known physicist William Herschel, written in 1763 and never published, was premiered by the Keweenaw symphony.

Thank you for your favorable consideration in naming Dr. Bryan H. Suits Professor Emeritus.

Approved

Ravindra Pandey Digitally signed by Ravindra Pandey
Date: 2023.03.01 14:34:56 -05'00' 3/1/23
Department of Physics, Chair Date

David Hemmer Digitally signed by David Hemmer
Date: 2023.03.01 18:00:09 -05'00' Date
College of Sciences Arts, Dean

Andrew J. Storer Digitally signed by Andrew J. Storer
Date: 2023.03.10 16:58:13 -05'00' Date
Provost Vice President for Academic Affairs

Richard J. Koubek Digitally signed by Richard J. Koubek
Date: 2023.03.13 07:17:21 -05'00' Date
President

DRAFT

VIII-E. PROPOSAL FOR A BACHELOR OF SCIENCE DEGREE IN NURSING

Following the recent announcement of Finlandia University's closure at the conclusion of this academic year and recognizing the importance of offering a baccalaureate nursing program in the local community, Michigan Tech entered into dialogue with Finlandia University regarding a transfer of their program to Michigan Tech.

The Bachelor of Science in Nursing (BSN) will prepare students to be registered nurses. The four-year curriculum leading to the BSN integrates courses in the humanities, social, biological, and natural sciences with the theory and practice of nursing. The curriculum will remain essentially the same as it was while operated by Finlandia, with some minor translations to Michigan Tech's existing non-nursing courses and general education program. Graduates of this degree will have the opportunity to become leaders and managers in clinical nursing within a variety of health care settings, prepared to practice in both rural and urban settings.

It is recommended that the BSN be housed in the Department of Biological Sciences based on curriculum needs and affinity with the Medical Lab Science and Pre-Med programs. The faculty and chair in the department, as well as the dean of the College of Sciences and Arts support housing the BSN.

The proposal has been approved by the University Senate and University administration. The University is seeking Board of Trustees approval to advance the proposal to the State Academic Affairs Officers, Board of Nursing, Higher Learning Commission, and Commission on Collegiate Nursing Education.

RECOMMENDATION: It is recommended that the Board of Trustees approves the Bachelor of Science degree in Nursing.

VIII-F. HONORARY DEGREE

The Administration recommends that Ms. Julie Fream be awarded an Honorary Doctorate of Philosophy degree from Michigan Technological University.

Julie Fream holds a Bachelor of Science in Chemical Engineering from Michigan Technological University and an MBA from the Harvard School of Business. She has been a leader in the auto industry, currently serving as President and CEO of Original Equipment Suppliers Association (OESA) and serving on the Board of Directors for the Automotive Hall of Fame. She has also held managerial positions with Ford Motor Company and Visteon Corporation. Julie's success has been recognized by Crain's Detroit business's "40 under 40" and twice as one of "Michigan's Most Influential Women". She has also been acknowledged as one of "100 Leading Women in the Automotive Industry" and awarded the Anti-Defamation League's Woman of Achievement Award for fostering an inclusive and diverse work environment.

Michigan Tech has also recognized Julie's accomplishments by awarding her the Distinguished Alumni Award, Distinguished Service Award, Outstanding Service Award, and Outstanding Young Alumni Award. She is also a member of Chemical Engineering's Academy, Michigan Tech Fund Life Trustee, and Alumni Association Life Member. She has also served on the Alumni Association's Board of Directors and the University's Board of Trustees, being named Board of Trustees Emerita during the December 2018 meeting.

RECOMMENDATION: It is recommended that the Board of Trustees approves the awarding of an Honorary Doctorate of Philosophy degree to Ms. Julie Fream.

VIII-G. REVISIONS TO BOARD POLICY 6.8 – FACULTY EMERITUS

It is being recommended that this policy be revised to allow tenured, instructional, and research track faculty with the rank of associate or higher, and professors of practice the opportunity to be recommended for emeritus rank. To recognize faculty who have served with distinction over an extended period of time, units should be provided the opportunity to recommend emeritus status. Faculty Emeritus is also addressed in section 1.5.4 of the Faculty Handbook. Should the Board approve this revision to Board Policy, the Faculty Handbook will also be updated.

RECOMMENDATION: The Board of Trustees approves the revision of Board Policy 6.8. Faculty Emeritus as presented.

REVISIONS

PURPLE = ADD

RED STRIKETHROUGH = DELETE

6.8 Faculty Emeritus

An honorary rank awarded to ~~retirees~~ retired faculty members who have ~~tenure in the professional ranks and have~~ served the University with distinction.

Recommendation for emeritus status shall be made by the members of the retiree's academic ~~department~~ unit through administrative channels to the President for presentation to the Board of Trustees.

FINAL VERSION

6.8 Faculty Emeritus

An honorary rank awarded to retired faculty members who have served the University with distinction.

Recommendation for emeritus status shall be made by the members of the retiree's academic unit through administrative channels to the President for presentation to the Board of Trustees.

VIII-H. FY 2024 GENERAL FUND OPERATING BUDGET

The general fund budget was developed based on assumptions regarding tuition and state appropriations. However, when the State budget is approved by the Legislature, if there are changes from these assumptions, the Administration is requesting that the Board allow them the flexibility to revise the budget to reflect a change in appropriations and/or tuition cap while continuing to maintain a balanced budget.

RECOMMENDATION: That the Board of Trustees approves the FY24 General Fund Operating Budget as presented and authorizes the Administration to revise the general fund operating budget to reflect any changes in state appropriations and/or tuition cap while maintaining a balanced budget and informing the Board Audit and Finance Committee of any such changes that may be necessary.



Fiscal Year 2024 Preliminary General Fund Budget

	FY23 Approved Budget	FY24 Proposed Budget	Variance	%
<u>OPERATING REVENUE</u>				
Student Tuition and Fees	\$ 160,907,628	\$ 169,982,526	\$ 9,074,898	5.6%
Federal Grants and Contracts	40,000	40,000	-	0.0%
State/Local Grants and Contracts	-	-	-	
Nongovernmental Grants and Contracts	-	-	-	
Indirect Cost Recoveries	16,700,000	16,850,000	150,000	0.9%
Educational Activities	485,728	485,728	-	0.0%
Student Resident Fees	-	-	-	
Sales and Services of Dept Activities	-	-	-	
TOTAL OPERATING REVENUE	\$ 178,133,356	\$ 187,358,254	\$ 9,224,898	5.2%
<u>OPERATING EXPENSES</u>				
Contingency/Carryforward Reserve	\$ (5,000,000)	\$ (5,000,000)	\$ -	0.0%
Salaries & Wages - Staff	(39,795,101)	(42,117,508)	(2,322,406)	5.8%
Salaries & Wages - Faculty	(48,369,248)	(51,309,259)	(2,940,010)	6.1%
Salaries & Wages - Graduate Students	(4,934,676)	(5,107,346)	(172,670)	3.5%
Salaries & Wages - Undergrad Students	(1,262,787)	(1,262,787)	-	0.0%
Fringe Benefits	(38,780,175)	(37,876,190)	903,985	-2.3%
Supplies & Services	(16,656,120)	(18,063,979)	(1,407,859)	8.5%
Scholarships and Fellowships	(59,803,313)	(62,779,096)	(2,975,783)	5.0%
Utilities	(3,938,170)	(3,938,170)	-	0.0%
TOTAL OPERATING EXPENSES	\$ (218,539,591)	\$ (227,454,334)	\$ (8,914,743)	4.1%
<u>TRANSFERS</u>				
TOTAL TRANSFERS	\$ (15,924,262)	\$ (18,144,262)	\$ (2,220,000)	13.9%
<u>NONOPERATING REVENUES (EXPENSES)</u>				
State Appropriations, Operating	\$ 52,319,195	\$ 54,029,040	\$ 1,709,845	3.3%
Gift Income	3,411,302	3,411,302	-	0.0%
Investment Income (loss)	600,000	800,000	200,000	33.3%
Federal Grants	-	-	-	
Interest Expense	-	-	-	
TOTAL NONOPERATING	\$ 56,330,497	\$ 58,240,342	\$ 1,909,845	3.4%
INCREASE (DECREASE) IN NET POSITION	\$ -	\$ (0)	\$ (0)	



**Michigan
Technological
University**

**Resident Undergraduate Tuition and Mandatory Fee Rate Comparison
State Reporting Requirements**

FY23 Approved Tuition & Fees

	Freshman	Sophomore	Junior	Senior	Average
Tier 3 Tuition (Plateau 12-18 Credits)	\$ 17,296.00	\$ 17,296.00	\$ 21,002.00	\$ 21,002.00	\$ 19,149.00
Fees					
Student Activity Fee	120.00	120.00	120.00	120.00	120.00
Experience Tech Fee	198.00	198.00	198.00	198.00	198.00
Total Tuition and Mandatory Fees:	\$ 17,614.00	\$ 17,614.00	\$ 21,320.00	\$ 21,320.00	\$ 19,467.00

FY24 Proposed Tuition & Fee Change

	Freshman	Sophomore	Junior	Senior	Average
Tier 3 Tuition (Plateau 12-18 Credits)	\$ 18,074.00	\$ 18,074.00	\$ 21,947.00	\$ 21,947.00	\$ 20,010.50
Fees					
Student Activity:	120.00	120.00	120.00	120.00	120.00
Experience Tech Fee:	198.00	198.00	198.00	198.00	198.00
Total Tuition and Mandatory Fees:	\$ 18,392.00	\$ 18,392.00	\$ 22,265.00	\$ 22,265.00	\$ 20,328.50
% Reported :	4.42%	4.42%	4.43%	4.43%	4.43%

FY24 Proposed Tuition & Fee Variance

	Freshman	Sophomore	Junior	Senior
Tuition \$ Change	\$ 778.00	\$ 778.00	\$ 945.00	\$ 945.00
% Change	4.50%	4.50%	4.50%	4.50%
Student Activity \$ Change	\$ -	\$ -	\$ -	\$ -
% Change	0.00%	0.00%	0.00%	0.00%
Experience Tech Fee \$ Change	\$ -	\$ -	\$ -	\$ -
% Change	0.00%	0.00%	0.00%	0.00%
Total Tuition and Mandatory Fees:	\$ 778.00	\$ 778.00	\$ 945.00	\$ 945.00
Percent Change:	4.42%	4.42%	4.43%	4.43%



**Michigan
Technological
University**

Proposed Fiscal Year 2024 Semester Tuition Rates

Undergraduate

Lower Division

All Majors

Upper Division

Tier 1

Tier 2

Tier 3

	Resident		Non-Resident	
	Tuition Rate per Credit Hour <12 and >18	Plateau Tuition Rate 12 - 18 Credits	Tuition Rate per Credit Hour <12 and >18	Plateau Tuition Rate 12 - 18 Credits
All Majors	\$682	\$9,037	\$1,519	\$20,511
Tier 1	\$760	\$9,995	\$1,618	\$21,830
Tier 2	\$786	\$10,207	\$1,646	\$22,033
Tier 3	\$906	\$10,974	\$1,782	\$22,916

NOTE: Per credit hour rate will apply to undergraduate students enrolled in the summer semester

Tier 1 Majors: Business, Economics, Humanities, Mathematical Sciences, Social Sciences, Visual & Performing Arts

Tier 2 Majors: Forest Resources, Environmental Science, Biological Sciences, Chemistry, Kinesiology & Integrative Physiology, Cognitive & Learning Sciences, Physics, Construction Management, Electrical Engineering Technology, Mechanical Engineering Technology

Tier 3 Majors: Engineering, Computer Science, Computer Network & Systems Admin, Surveying

Graduate

Standard Per Credit Rate

National Service Rate

Research Mode Rate

	Non- Engineering/ Computer Science	Engineering/ Computer Science
Standard Per Credit Rate	\$1,283	\$1,458
National Service Rate	\$861	\$977
Research Mode Rate	\$423	\$481

VIII-I. APPROVAL TO NEGOTIATE AND EXECUTE A PRE-DEVELOPMENT AGREEMENT FOR P3 HOUSING EXPANSION

To address the need for expanded on-campus housing capacity, the University is partnering with a selected Developer partner who will design, build, operate and maintain the identified housing expansion project, and will be responsible for securing financing for the development and construction of the project.

At this time, it is necessary for the Developer to undertake pre-development activities including design and engineering work, permitting, geotechnical testing and other site investigations, surveys, and other preconstruction services. In doing so, it is necessary for the University and the Developer to enter into a pre-development agreement to more particularly define the scope and terms of the Pre-Development Activities to be conducted by the Developer prior to the execution of the Definitive Agreements governing the transaction, and to provide for the budgeting and allocation of the costs of the Pre-Development Activities between the University and the Developer.

RECOMMENDATION: That the Board of Trustees adopt the attached resolution authorizing the President of the University and/or the Interim Chief Financial Officer to negotiate, execute, and deliver a Pre-Development Agreement with RISE Development, LLC and to commence negotiation of the Definitive Agreements to be entered into subject to the final approval of the Board.

RESOLUTION OF THE BOARD OF TRUSTEES OF
MICHIGAN TECHNOLOGICAL UNIVERSITY
AUTHORIZING A PRE-DEVELOPMENT AGREEMENT FOR
THE DEVELOPMENT OF CAMPUS STUDENT HOUSING

WHEREAS, the Board of Trustees of Michigan Technological (the “*Board*”) is a constitutional body corporate established pursuant to Article VIII, Section 6 of the Constitution of the State of Michigan of 1963, with general supervision of Michigan Technological University (the “*University*”) and the control and direction of all expenditures from the University’s funds; and

WHEREAS, the University previously issued a “Request for Proposal for Student Housing Development Opportunity at Michigan Technological University in Houghton, Michigan,” dated October 5, 2022, together with certain Addenda thereto (collectively, the “*RFP*”), for the design, construction, financing, operation and maintenance of a new student housing project to be located on the campus of the University, as more particularly described in the RFP (the “*Project*”); and

WHEREAS, following a comprehensive proposal evaluation process and interviews with respondents to the RFP, the University selected RISE Development, LLC (the “*Developer*”) as the preferred developer for the Project, subject to the negotiation and approval of definitive agreements relating to the ownership, development, financing, management, and operation of the Project (collectively, the “*Definitive Agreements*”); and

WHEREAS, under the terms of the Definitive Agreements, the Developer or its affiliates will undertake to design, build, operate and maintain the Project, and will be responsible for securing financing for the development and construction of the Project; and

WHEREAS, in furtherance of the negotiation of the Definitive Agreements, it is necessary for the Developer to undertake certain pre-development activities relating to the Project, including design and engineering work, permitting, geotechnical testing and other site investigations, surveys, and other preconstruction services (collectively, the “*Pre-Development Activities*”); and

WHEREAS, it is necessary for the Board and the Developer to enter into a pre-development agreement (the “*Pre-Development Agreement*”) to more particularly define the scope and terms of the Pre-Development Activities to be conducted by the Developer prior to the execution of the Definitive Agreements, and to provide for the budgeting and allocation of the costs of the Pre-Development Activities between the University and the Developer.

NOW, THEREFORE, it is resolved by the Board of Trustees of Michigan Technological University as follows:

1. The President and the Interim Chief Financial Officer of the University (each, an “*Authorized Officer*”), or either one of them individually, are authorized to negotiate, execute and deliver, for and on behalf of the Board, the Pre-Development Agreement, in such form and upon such terms and conditions as shall be approved by an Authorized Officer.

2. The Authorized Officers, or either one of them individually, are further authorized to commence negotiation of the Definitive Agreements to be entered into between the University and the Developer or its affiliates; provided, however, that the approval, execution and delivery of the Definitive Agreements shall be subject to the final approval of the Board.

3. Any resolutions or parts of resolutions or other proceedings of the Board in conflict herewith are hereby repealed insofar as such conflict exists

IX. Reports

IX-A. Faculty Research Presentation

Ana Dyreson, Assistant Professor, Mechanical Engineering-Engineering
Mechanics

Electrification and decarbonization in the north: challenges and opportunities

Presentation to Michigan Tech Board of Trustees

Ana Dyreson, PhD, P.E.

Assistant Professor, Mechanical Engineering - Engineering Mechanics

Great Lakes Energy Group



Outline

- Introduction
- Solar photovoltaic performance in snowy climates
- Electrification of heating services in the rural north

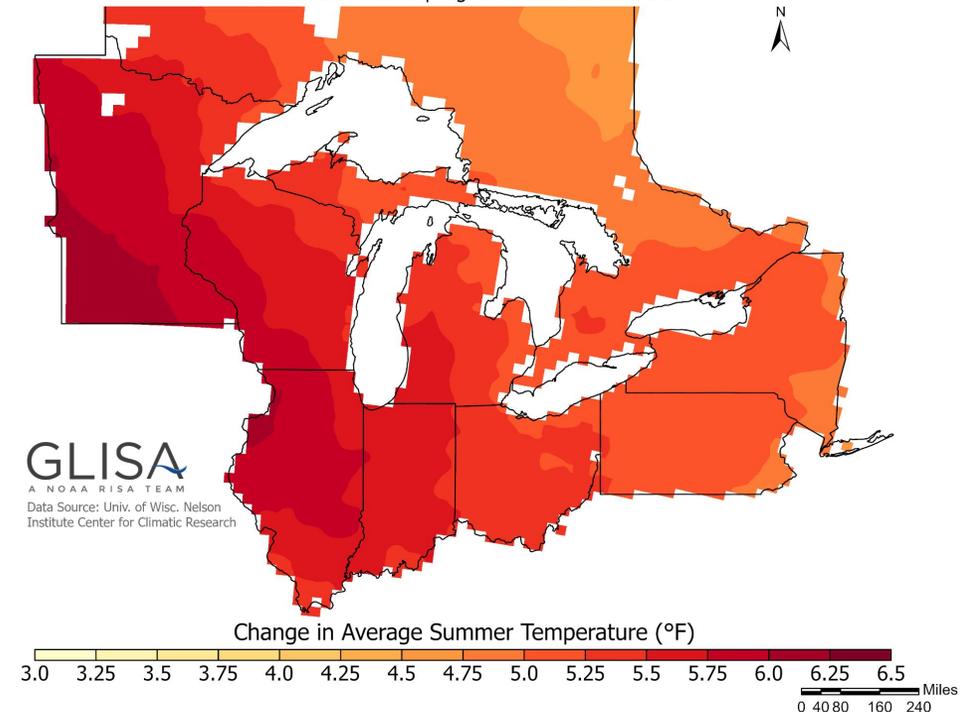


Great Lakes Energy Group

We study the impacts of **weather, climate,** and **climate change** on future power systems. Particularly in the Great Lakes region we seek to understand the regional drivers of change, including:

- Lake-effect climate
- Electrification of heating services
- Snow shading on solar photovoltaics
- Wind and wave potential on the Lakes
- Post-industrial sustainable redevelopment

Projected Change in Average Summer Temperature by Mid-Century
Period: 2040-2059 | Higher Emissions: RCP 8.5



Solar photovoltaics (PV) in the north

Acknowledgements:

Ayush Chutani, MTU

Shelbie Wickett, MTU

Paul Dice, MTU

Laurie Burnham, PhD, Sandia National Laboratory

Kyumin Lee, PhD, Array Technologies

Funded by

U.S. Department of Energy Solar Energy Technologies Office, Award 38527



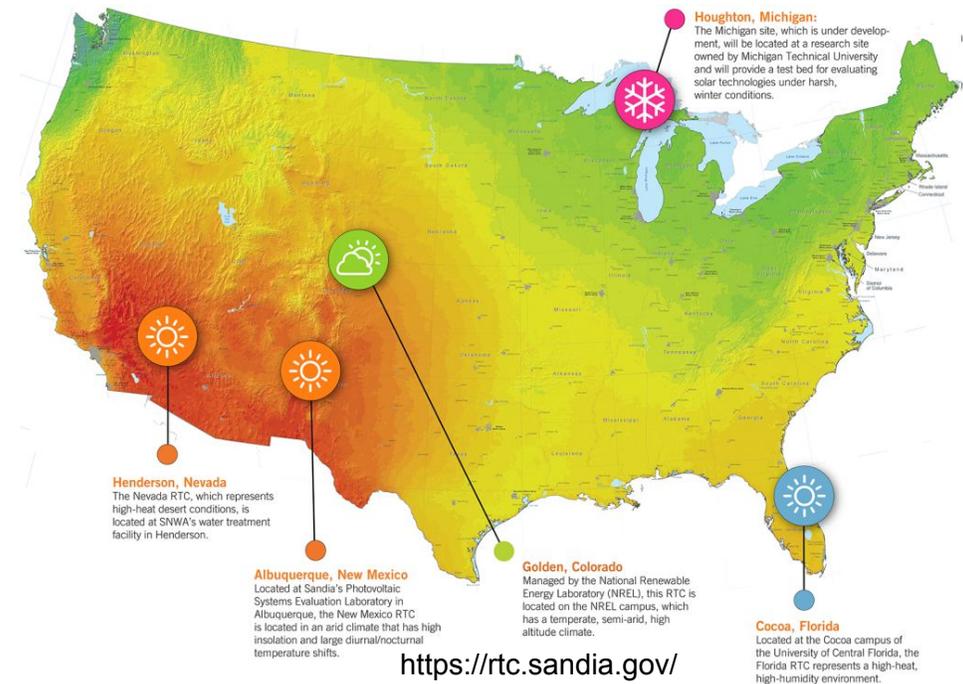
MI Solar Regional Test Center (MI RTC)

The **MI RTC** is the most northern of the 5 RTCs, with high snow and cold loads that provide ideal test-bed conditions.

- Managed by Sandia National Labs (DOE), operated by MTU's APS LABS
- World-class meteorological and irradiance instrumentation
- Sandia-designed monitoring equipment
- Open-racking to support new installations



Photo credit: MTU APS LABS



Higher penetrations of solar in the north require understanding snow effects

- While in the future more precipitation may fall as rain in general, lake-effect snow could continue
- Fixed-tilt PV designs are adapting for snowy climates
- Single-axis tracking systems now dominate new installations and are not yet optimized for snow
- Snow events in future high penetration solar power systems are not well understood (Cole et al.)



Photo credit: Christopher Pike via sandia.gov



Photo credit: Ana Dyreson

Tracker optimization for snow

- **Objective:** Develop advanced control algorithms for trackers to minimize snow retention and accelerate shedding, with a documented increase in winter performance.
- Single axis tracking system donated by Array Technologies



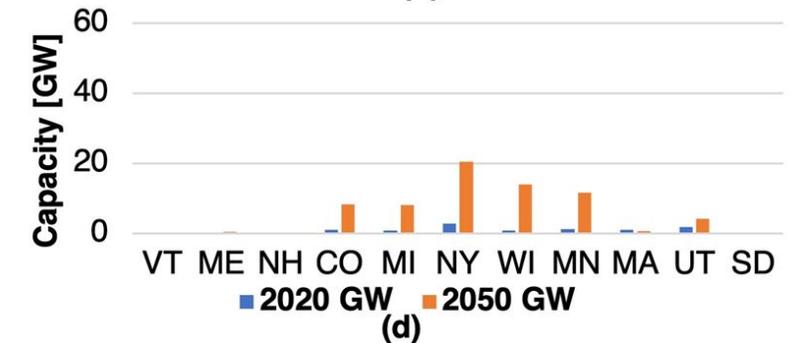
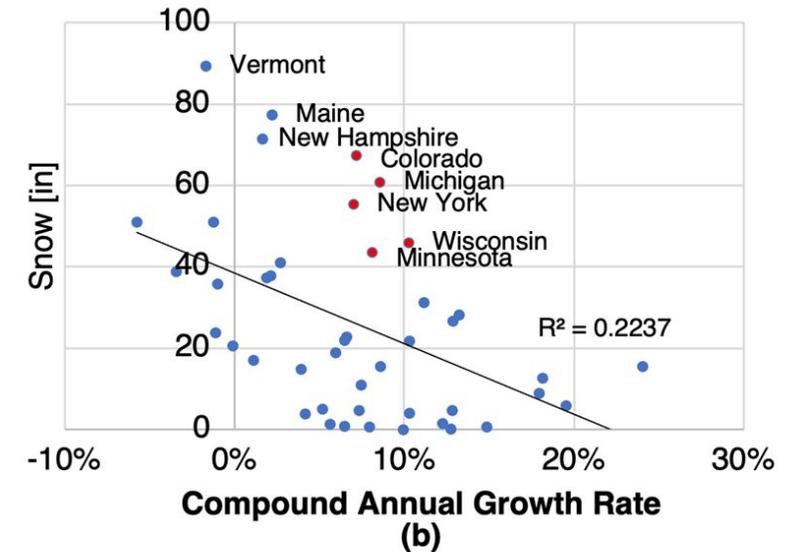
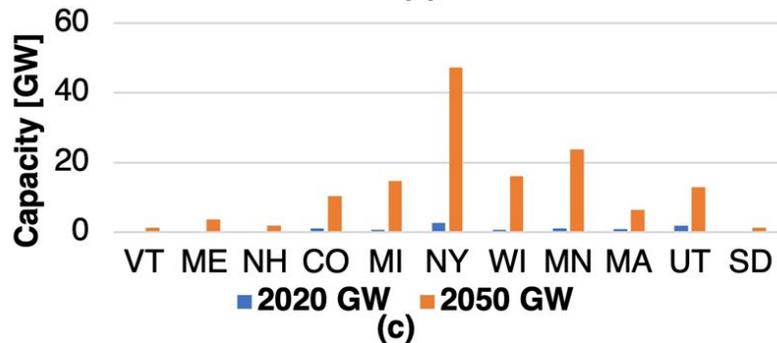
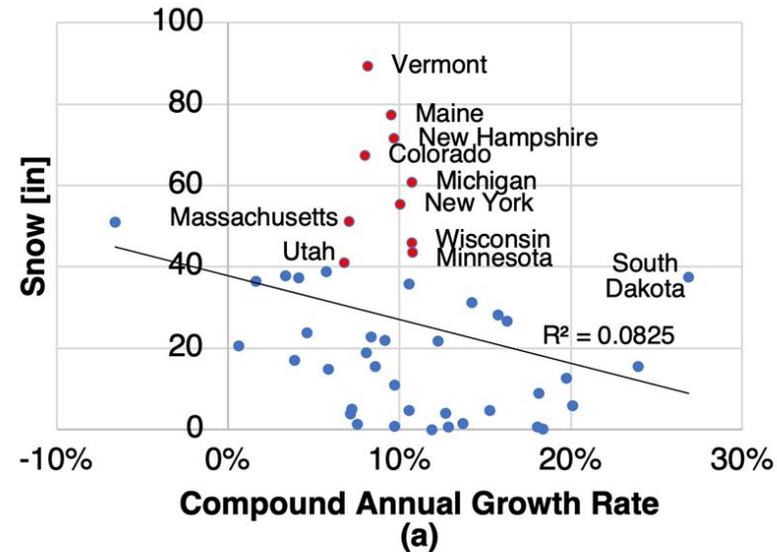
Snow sensing system for tracker system



Impact of snow shading on grid operations

Relationship between snowy states and utility solar growth:

- ReEDS capacity planning model
- Compared high-demand PV growth to mid-case PV growth in 2050
- Some snowy states showed over 5% CAGR of utility solar even in the mid-case “business as usual” scenario



Electrification and climate resilience in the rural north

Acknowledgements:

Dr. Chelsea Schelly, MTU

Dr. Roman Sidortsov, MTU

Dr. Tim Scarlett, MTU

Adnan Hilal, MTU

Dr. Lester Shen, Minnesota Center for Energy and Environment

Dave Bohac, Minnesota Center for Energy and Environment

Dr. Josh Quinnell, Minnesota Center for Energy and Environment

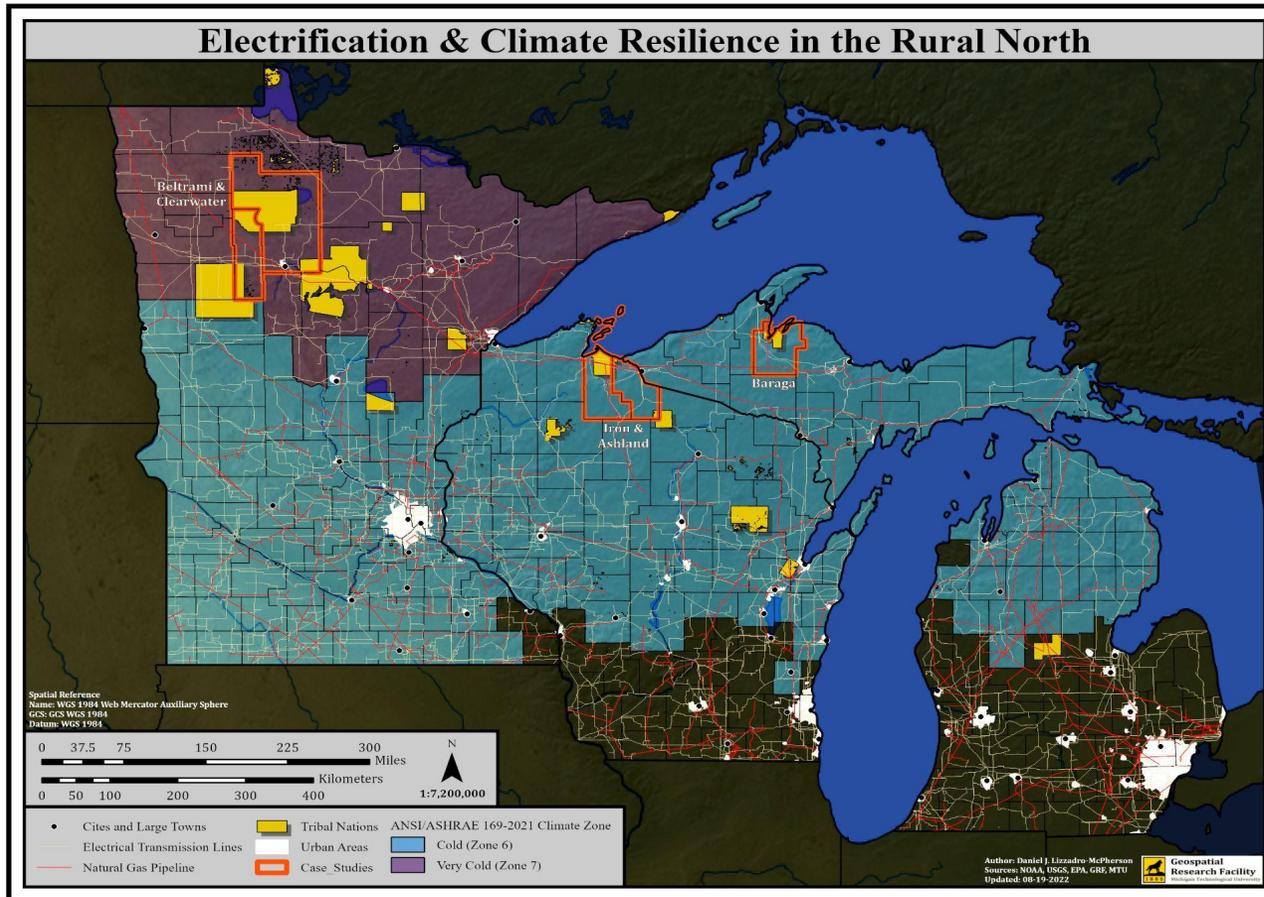
Our Community Advisory Board members

Funded by the Alfred P. Sloan Foundation Grant G-2022-19480



Region of interest

- Cold climates in MN, WI, MI
 - Excludes southern WI & MI
 - Excludes urban areas
- Focus on post-industrial and Indigenous communities
- Three case studies to capture community-level detail
- Case study communities may self-define and evolve



Electrification of heating services in the rural north is difficult, and critical

- Space heating accounts for 60% of home energy consumption in cold climates in the Midwest (EIA, 2018) primarily with fossil fuels
- Electric heat pumps typically operate down to 10 °F, which would cover 65-85% of annual heating load in Minnesota (Schoenbauer, Kessler, and Kushler 2017)
- Disadvantaged communities in this region tend to spend a higher portion of their income on energy such as Tribal (Honor the Earth 2022) and post-industrial communities
- Large-scale models do not capture the interaction of disparate building weatherization and heat pump performance



Core research questions (RQ)

What are the technical and social barriers and opportunities for resilient and equitable electrification in the rural north?

Resilience of heating and cooling services provided with electricity (RQ1)

Development of renewable energy and energy storage on rural land (RQ2)

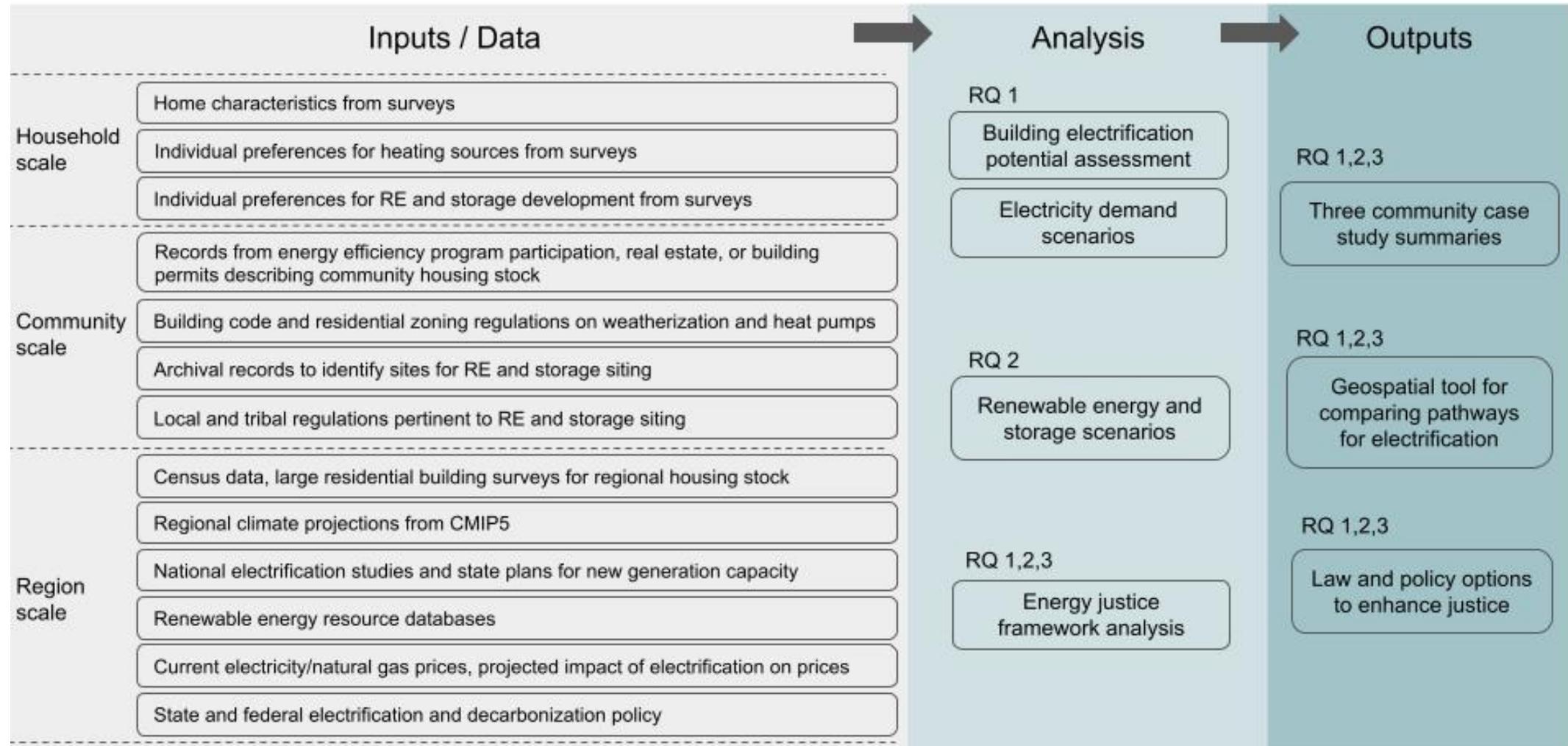


Case studies & community partners

MI	L'Anse and Baraga	<ul style="list-style-type: none">• Baraga County pop. 8,337• Home of Keweenaw Bay Indian Community• 8th Fire Consulting, LLC is a partner
WI	Rural areas near Ashland and Bayfield	<ul style="list-style-type: none">• Ashland and Iron counties, rural pop. 7,908• Iron County Development Zone & Cheq Bay Renewables are partners• Home of Bad River Tribe
MN	Rural areas near largest tract of Red Lake Reservation	<ul style="list-style-type: none">• Beltrami and Clearwater counties, rural pop. 39,525• Native Sun Community Energy is a partner and collaborator with CEE



Methodological approach



Ana Dyreson adyreson@mtu.edu

Thank you!

Great Lakes Energy Group

References

- Cole, W., Greer, D., Ho, J., Margolis, R., *Considerations for maintaining resource adequacy of electricity systems with high penetrations of PV and storage*, Applied Energy, 2020
- Cohen, S., Dyreson, A., Turner, S.W., Tidwell, V., Voisin, N., Miara, A., 2022, *A multi-model framework for assessing long-and short-term climate influences on the electric grid*, Applied Energy, <https://doi.org/10.1016/j.apenergy.2022.119193>
- EIA, 2018. Table CE3.3 Annual household site end-use consumption in the Midwest – totals and average, 2015 from 2015 Residential Energy Consumption Survey, U.S. Energy Information Administration (EIA).
- Jackson, N., Gunda, T., (2021) *Evaluation of extreme weather impacts on utility-scale photovoltaic plant performance in the United States*, Applied Energy v 302. <https://doi.org/10.1016/j.apenergy.2021.117508>
- Honor the Earth. 2022. “Rural Electrification with Indigenous Nations In-the North Country.”
- Schoenbauer, B., Kessler, N. and Kushler, M.. 2017. “Cold Climate Air Source Heat Pump.” MN Commerce Department.
- USGCRP. (2017). *Climate Science Special Report: Fourth National Climate Assessment, Volume I* (pp. 1–470). U.S. Global Change Research Program. <https://science2017.globalchange.gov/>
- Xue, P., Ye, X., Pal, J. S., Chu, P. Y., Kayastha, M. B., & Huang, C. (2022). Climate Projections over the Great Lakes Region: Using Two-way Coupling of a Regional Climate Model with a 3-D Lake Model. *Geoscientific Model Development Discussions*, 1–37. <https://doi.org/10.5194/gmd-2021-440>



IX-B. Provost Report

Andrew Storer, Provost and Senior Vice President for Academic Affairs

Provost's Report

Board of Trustees April 28, 2023

Andrew J. Storer, Provost



Michigan Tech

Tenure and Promotion Recommendations

7 Recommendations for promotions from

- Assistant Professor without Tenure to Associate Professor with Tenure

1 Recommendation for promotion from

- Associate Professor without Tenure to Associate Professor with Tenure

10 Recommendations for promotions from

- Associate Professor with Tenure to Full Professor with Tenure



Kudos to Faculty Considered for Tenure and/or Promotion

From Virginia Polytechnic Institute and State University:

*“...sets a new bar for research
productivity and impact.”*

From Lehigh Universtiy:

*“I see no signs of [this person]
slowing down and if they continue in
these directions, I predict that many
professional successes are ahead of
them.”*

From Univ. of IL at Urbana-Champaign:

*“Even before completing their Ph.D., [this
person] played a critical role in what has
been a 20-year effort to re-establish
[research area] as a discipline in university
curricula.”*

From University of Michigan:

*“[This person] is already an internationally
recognized expert in several [research
areas].”*



Kudos Continued

From Univ. of TX at San Antonio:

“[This person’s] dossier shows that their lab has trained students and postdocs at all levels at Michigan Tech. I wish [this person] could be my next-door colleague, and I would like to have an opportunity to work together.”

From Cornell University:

*“Perhaps more significant than the number of papers, is the quality of journals where [this person] publishes...
...also publishes with these students, something that not all faculty make the effort to do.”*

From Georgia Tech University:

“[This person’s] contribution to the field of [research area] is outstanding, and they will certainly lead some of the community in new and exciting directions.”



Instructional Track Faculty Promotions

4 Promotions from Asst. Teaching Prof. to Assoc. Teaching Prof.

- Mary Cyr – Department of Visual and Performing Arts
- Paniz Hazaveh – Department of Applied Computing
- Mickey Jarvi – College of Forest Resources and Env. Science
- Raymond Molzon – Department of Mathematical Sciences

3 Promotions from Assoc. Teaching Prof. to Teaching Prof.

- Leyre Alegre-Figuero – Department of Humanities
- Radheshyam Tewari – Dept. of Mechanical Eng.–Eng. Mechanics
- Roger Woods – College of Business



Reviews for Reappointment

77 Tenure-track faculty reviews

30 Major reviews of tenure-track faculty for reappointment.

- Recommendations forwarded for approval to the Board of Trustees.

47 Interim reviews of tenure-track faculty for continuing appointment.

- Board approval not required for continuing appointments.

74 Instructional-track faculty reviews

- Instructional-track faculty reviewed for reappointment or continuing appointment.
- Professors of Practice reviewed for continuing appointment.
- Board approval not required for reappointment or continuing appointment of instructional-track faculty.



Proposed Updates to Board of Trustees Policy 6.8 Faculty Emeritus

Recommendation originated from working group

- Charged with looking at what was previously referenced NTT faculty
- Last spring the Board approved new titles of instructional-track faculty.

Recommended changes

- Allow retired faculty the opportunity to be recommended for the title of emerita/emeritus
 - Removes the requirement for tenure
- Change the reference of academic department to academic unit



Emerita/Emeritus Faculty Recommendations This Meeting

Dr. Brian Fick – Department of Physics

Dr. Sarah Green – Department of Chemistry

Dr. Chandrashekhar Joshi – Department of Biological Sciences

Dr. Thomas Merz – College of Business

Dr. Jennifer Slack - Department of Humanities

Dr. Bryan Suits – Department of Physics



Emerita/Emeritus Faculty

Previously Approved, but Recognizing Here

Dr. Jeffrey Burl – Department of Electrical and Computer Engineering

Dr. Kathleen Feigl - Department of Mathematical Sciences

Dr. Jean Kampe – Department of Materials Science and Engineering

Dr. S. Komar Kawatra - Department of Chemical Engineering

Dr. Michael Roggemann – Dept. of Electrical and Computer Engineering

Dr. Ronald Strickland - Department of Humanities

Dr. Lawrence Sutter - Department of Materials Science and Engineering

Dr. Franz Tanner - Department of Mathematical Sciences



2022-23 Curriculum Changes

2 New Undergraduate Degrees

2 New Graduate Certificates

4 Undergraduate Programs Shelved

1 Graduate Program Shelved

2 Undergraduate Programs Eliminated

1 Graduate Program Eliminated

3 New Degrees Pending Final Approval



University Professor Awarded Spring 2023

Raymond Shaw

Professor

Director, Atmospheric Sciences PhD
Program

Affiliated Professor, ME-EM

Department of Physics



Distinguished Professors Reappointed Spring 2023

Jarek Drelich

Professor

MSE



Nancy Langston

Professor

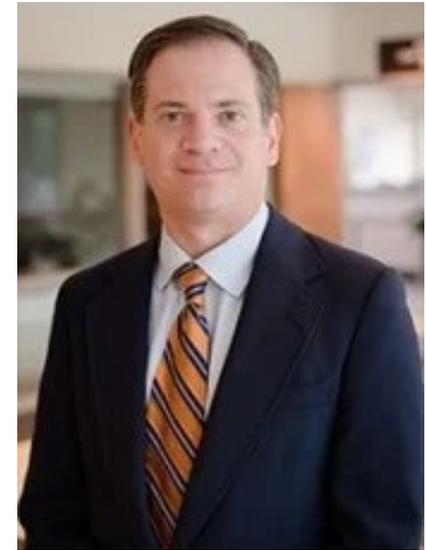
SS



David Watkins

Professor

CEGE



Thank You



Michigan Tech

IX-C. Undergraduate Student Government

Mason Krause, President and Cheyenne Scott, President Emerita

USG Board of Trustees Presentation

Mason Krause, USG President

Cheyenne Scott, USG President Emeritus

4-28-2023



**Michigan
Technological**
University

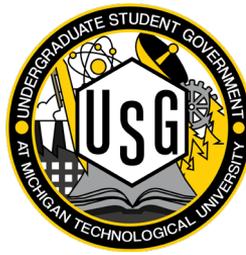




Review of 2022 - 2023

- October Recess Passed (Proposal 10-23)
- Continuation of Dining Services Town Halls
- Living Room Conversations events a huge success
- Record engagement in our most recent E-Board Election
- Exceeded last years RSO funding utilization
- Cycle Project revitalized and expanded

2023-2024 Executive Board



President: Mason Krause

Major:
Mechanical
Engineering



Vice-President:
Mariah Mellendorf

Major: Cybersecurity and
Sustainability Science &
Society



Secretary: Isobel Bowker

Major:
Mechanical
Engineering



Treasurer: Emily Ruf

Major: Mathematics
and Statistics



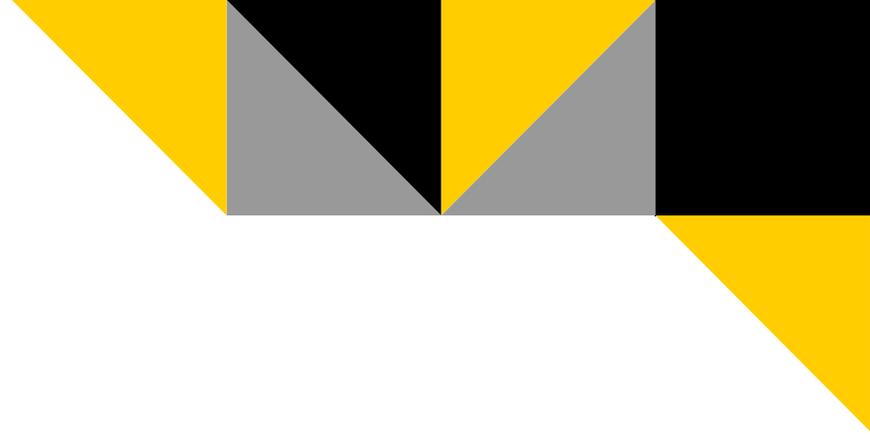
2023-2024 New Body Members



Goals for Fall 2023



- Enhance USG's publicity and outreach efforts
- Greater emphasis on student engagement and recruitment
 - K-Day/ O-Week Activities
- Organizing and streamlining recurring USG tasks
 - Break Bus
 - Body Barn
- Building crucial relationships with administration and the senate
- Creating new channels for concern submission from students to USG



Thank you! Questions or Comments?

Mason Krause

mrkrause@mtu.edu

usg-president@mtu.edu



**Michigan
Technological
University**



IX-D. Graduate Student Government

Karlee Westrem, President Elect and Ranit Karmakar, President



Presentation to

BOARD OF TRUSTEES

Ranit Karmakar & Karlee Westrem

President

GRADUATE STUDENT GOVERNMENT

April 28, 2023



GSG RESEARCH EVENTS

GRADUATE RESEARCH COLLOQUIUM (Mar 29th – 30th)



84 presentations
12 sessions
40 posters
150+ visitors for poster session



GSG RESEARCH EVENTS

GRC Banquet





GSG RESEARCH EVENTS

Merit Awards



Exceptional Student Scholar
Peifeng Su
Exceptional Student Leader
Apurva Baruah
Exceptional Graduate Mentor
Robert Schneider (*Math*)
Exceptional Staff Member
Kathleen Burke (*Math*)

Service Awards



Mehnaz Tabassum (*ECE*)
Lauren Monroe (*CLS*)
Katie Nelson (*GMES*)
Trevor Wavrunek (*MEEM*)



GSG SOCIAL EVENTS

POTTERY PAINTING (Mar 23rd)



CULTURAL NIGHT (Apr 8th)



LASERTAG (Apr 14th)





GRAD COMMONS

“New house for Grad students, new home for GSG”

1162 swipes*

~1600+ attendance + GSG events

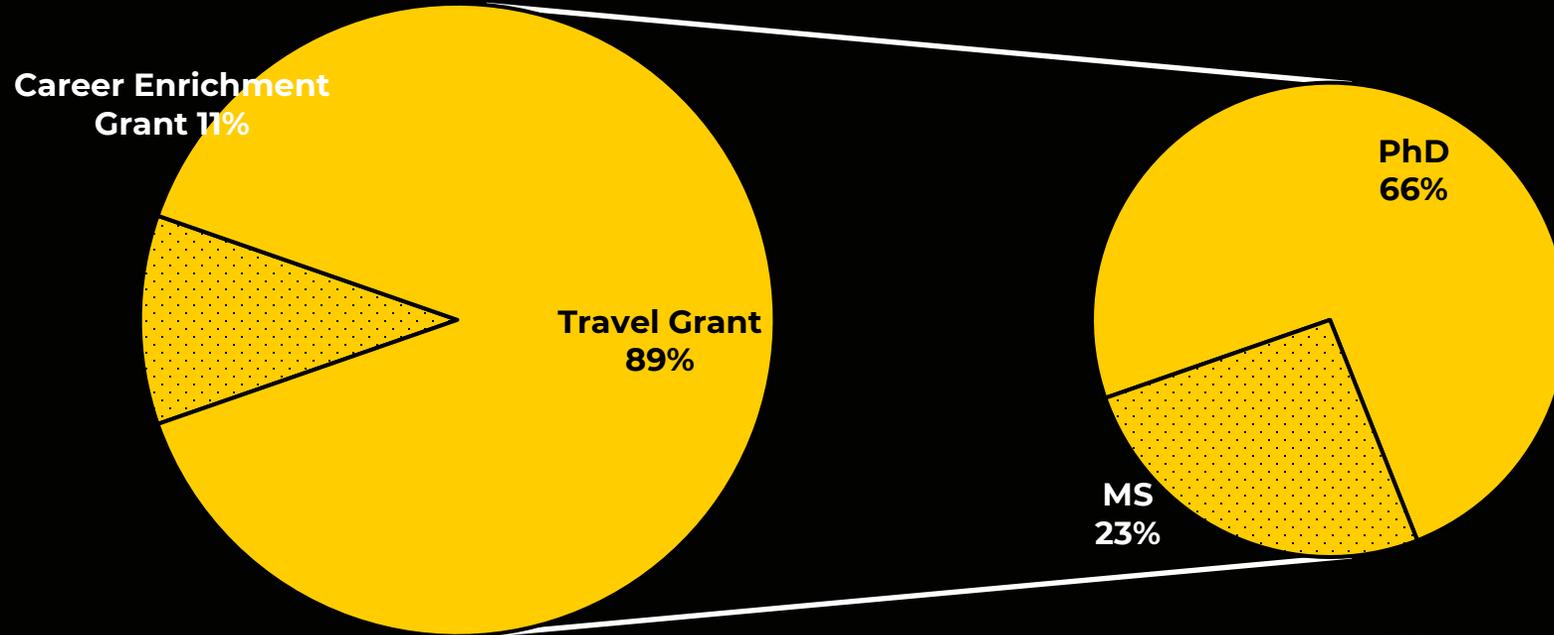
“Good time, nice space. I like to hang out here and study”

**as of March 31st*





TRAVEL AND CAREER ENRICHMENT GRANT



#117 Travel Grant*

#14 Career Enrichment Grant*



ADVOCACY AND INITIATIVES

HANCOCK SHUTTLE – *Pilot*



Ridership: 1128 as of April 12th

TRAVEL GRANT



Increased from \$250 to \$500/\$750 (domestic/international)

ACCESSIBILITY AD-HOC COMMITTEE REPORT



Submitted the report to President Koubek for his consideration



ADVOCACY AND INITIATIVES

- Health insurance
- Transportation
- GTA/GTI Recognition
- Graduate Student Support Package
- Housing
- Graduate Student Sense of Belonging
- Student Activity Fees Reallocation



YEAR IN REVIEW

#24 University Committees

#36 GSG Events

#38 Meet and Greets

#131 Travel and Career Enrichment Grants

#23 Collaborators

~#4500+ Student Engagements (+150%)

~#50 Graduate Students

+255 New Followers | +164.2% Post Reach

1.6k Views | 31.5 Hours of watch time



PARTNERS, COLLABORATORS AND FRIENDS



Michigan Technological University
Van Pelt and
Opie Library



Michigan Technological University
Facilities Management



Michigan Technological University
Alumni & Friends



Michigan Technological University
Graduate School



Michigan Technological University
Career Services



Michigan Technological University
International Programs
and Services



Michigan Technological University
Center for Diversity
and Inclusion



Michigan Technological University
College of Engineering



Michigan Technological University
College of Sciences and Arts



Michigan Technological University
College of Computing



Michigan Technological University
Dean of Students



Michigan Technological University
Vice President for Research



PORTAGE LAKE DISTRICT
LIBRARY



BLACK ICE
Comics & Books



GSG LEADERSHIP '23-'24



Karlee Westrem
President
PhD Mathematical Sciences



Austin DePottey
Vice President
PhD Material Sciences



Matt Sisson
Secretary
PhD Material Sciences



Ali Moazzam
Treasurer
PhD Electrical and Computer
Engineering



Travis Wavrunek
Academic - Research Chair
PhD Mechanical Engineering



Anusha Kannan
*Academic - Professional Development
Chair*
MS Applied Cognitive Science and
Human Factors



Trevor Wavrunek
Social Chair
PhD Mechanical Engineering

Public Relations Chair



THANK YOU

 /GraduateStudentGovernment

 /gsg.mtu

 /Graduate Student Government of Michigan Tech

Email: gsg@mtu.edu

Website: <https://gsg.mtu.edu>

Office: Grad Commons

IX-E. University Senate
Mike Mullins, President

University Senate AY 23-24 Review

The University Senate will be regarded as a respected, relevant and independent representative body that leads by promoting faculty and staff interests in the shared governance of the University. Its actions support the University mission and the day-to-day professional activities of faculty and staff. The University Senate is an active partner in University decisions affecting academic and administrative affairs.

Michael Mullins, Senate President

April 28, 2022



Michigan Tech

Senate Business regarding Academic Offerings

- ❖ **Elimination of Shelved Programs and Shelving inactive programs (4).**
- ❖ **16-23: Proposal for a Bachelor of Science degree in Data Science.**
- ❖ **18-23: Proposal to Revise General Education Requirements (Essential Education) for Bachelor Degrees.**
- ❖ **28-23: Establishment of a Associate of Science in Engineering.**
- ❖ **29-23: Proposal for a Bachelor's of Science Degree in Environmental Data Science.**
- ❖ **30-23: Establishment of a Master of Science in Applied Computer Science.**
- ❖ **31-23: Establishment of a Graduate Certificate in Public Health Informatics.**
- ❖ **32-23: Establishment of a Graduate Certificate in Foundations of Health Informatics.**
- ❖ **33-23: Bachelor of Science in Nursing.**



Changes affecting Faculty Handbook and Senate Policy

- ❖ **1-23: Process for Joint Appointment Procedures for Tenure and Promotion Review**
- ❖ **2-23: Amending the University Senate Bylaws to Allow Removal of Elected Officers**
- ❖ **8-23: Proposal to Change Eligibility for Emeritus Status**
- ❖ **9-23: Amending the Scheduling of the October Recess in Senate Procedure 101.1.1**
- ❖ **10-23: Update 2023-2024 Academic Calendar & Provisional 2024-2025 Academic Calendar to Include October Recess**
- ❖ **17-23: Senate Meeting Times**
- ❖ **27-23: Proposal to Update Bylaws and Constitution to Clarify Senate Elections**
- ❖ **36-23: Proposal to Modify Senate Procedure 805.1.1: Search Procedures for Departmental Chairs and School Deans**
- ❖ **37-23: Proposal to Modify Senate Procedure 506.1.1 Evaluation Procedures For Department Chairs And School Deans**
- ❖ **38-23: Proposal to Modify Senate Procedure 507.1.1 Procedure To Enhance Confidentiality & Anonymity In Administrators Review Surveys**



Senate Resolutions

- ❖ **1-23: Process for Joint Appointment Procedures for Tenure and Promotion Review**
- ❖ **11-23: Assist Michigan Tech's Iranian Community**
- ❖ **21-23: Improve Michigan Tech's Graduate Student Health Care Benefits**
- ❖ **22-23: Emergency Resolution of Solidarity with Michigan State University and a Call for a Formal Review of Campus Preparation for Similar Emergencies at Michigan Tech**
- ❖ **24-23: Resolution to Provide All Michigan Technological University Employees an Equitable Living Wage**
- ❖ **26-23: Emergency Resolution to Support the Development of a Bachelor of Science in Nursing Degree Program at Michigan Tech**
- ❖ **39-23: Resolution to Improve Husky Health Benefit**



Finally ---

Congratulations to the new Senate Officers for 2023-2024!

Thanks to:

- ✓ The members of the University Senate.
- ✓ The dedicated Senate committee chairs.
- ✓ The Senate staff person, Ashley Buchanan.
- ✓ Provost Andrew Storer & President Rick Koubek.
- ✓ The Michigan Tech BOT for their commitment to the often-messy process of shared governance.



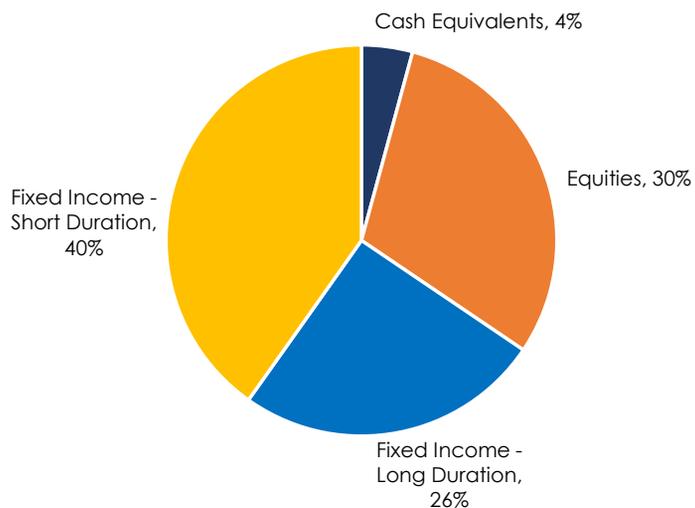
X. Informational Items

X-A. Analysis of Investments

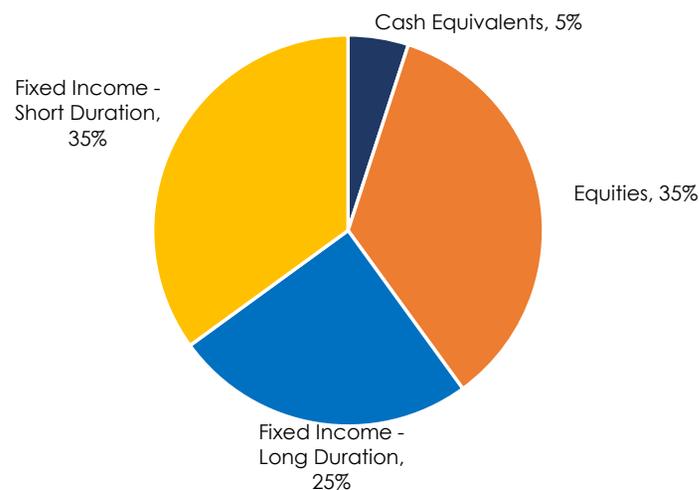
**MICHIGAN TECH UNIVERSITY
INVESTMENT PORTFOLIO
JUNE 30, 2022 THROUGH FEBRUARY 28, 2023**

	Market Value 6/30/2022	Market Value 2/28/2023	Fiscal-Year Investment Return	Benchmark Return	Benchmark
Money Market Fund	\$ 2,094,114	\$ 2,098,387	2.10%	2.04%	ICE BofA Merrill Lynch US T-Bill Index
Equity Funds:					
Core Equity Fund	8,446,297	8,587,326	5.73%	6.08%	S&P 500
Commonfund Strategic Solutions Equity Fund	6,476,270	6,413,932	3.85%	6.08%	S&P 500
Total Equity Funds	14,922,567	15,001,258			
Fixed Income Funds:					
Intermediate Term Fund	9,410,365	9,960,191	-0.28%	-0.89%	ICE BofA Merrill Lynch 1-3 Yr Treasury
Commonfund Contingent Asset Portfolio	9,384,710	9,983,099	0.53%	-0.89%	ICE BofA Merrill Lynch 1-3 Yr Treasury
High Quality Bond Fund	5,650,449	6,297,663	-2.47%	-2.57%	Bloomberg Barclays US Aggregate Bond Index
Multi-Strategy Bond Fund	5,649,010	6,287,910	-2.64%	-2.57%	Bloomberg Barclays US Aggregate Bond Index
Total Fixed Income Funds	30,094,534	32,528,863			
Total	\$ 47,111,215	\$ 49,628,508	1.15%		

Current Asset Allocation



Target Asset Allocation



X-B. Research & Sponsored Programs

Sponsored Activities Summary

Fiscal Year 2023, Quarter Ended 3/31/2023

- Awards are up 4.6% as of the 3rd quarter of FY23, compared to 3rd quarter of FY22. This is after being down 6% as of the end of the 2nd quarter in FY23.
- Gifts are down 30.7% as of the 3rd quarter of FY23, compared to 3rd quarter of FY22.
- Federal agency awards are up 5.7% after the 3rd quarter of FY23, compared to the 3rd quarter of FY22. This is after being down 4.3% as of the 2nd quarter in FY23.
- Industry activity was strong this past quarter; it is up 22% for this fiscal year, compared to 9.8% at the end of FY23 2nd quarter.
- Research expenditures are up 8.0% as of the 3rd quarter, compared to the 3rd quarter of FY22. Internal research expenditures are up 10% while the external expenditures are up 6.5%.

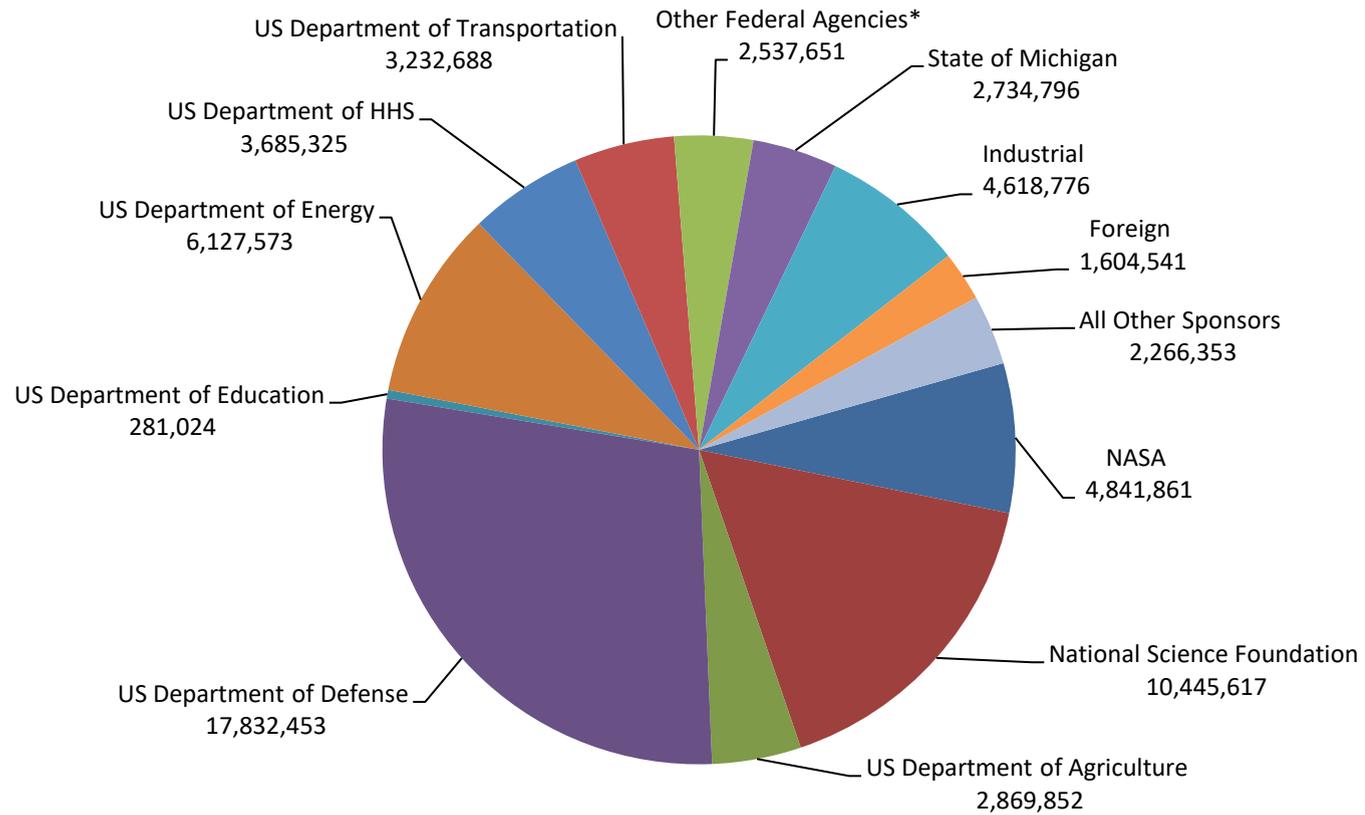
Formal Session of the Board of Trustees -Research

**Sponsored Awards
Fiscal Year 2023
3rd Quarter
Ended March 31, 2023**

TOTAL: \$65,877,812

**Pre-Proposals Submitted
(excluded from Proposals
Submitted figures below)**

**FYTD 2022: 22
FYTD 2023: 49**



Sponsor	Proposals Submitted		Awards Received		Awards Received (\$)		Variance \$	Variance %
	FY '23 as of 3/31	FY '22 as of 3/31	FY '23 as of 3/31	FY '22 as of 3/31	FY '23 as of 3/31	FY '22 as of 3/31		
NASA	58	68	25	23	4,841,861	4,533,465	308,396	6.8%
National Science Foundation	103	114	39	43	10,445,617	10,609,297	-163,680	-1.5%
US Department of Agriculture	45	36	31	37	2,869,852	1,934,302	935,550	48.4%
US Department of Defense	77	79	81	69	17,832,453	14,063,681	3,768,772	26.8%
US Department of Education	2	4	2	4	281,024	335,401	-54,377	-16.2%
US Department of Energy	45	35	31	24	6,127,573	5,339,903	787,670	14.8%
US Department of HHS	54	46	12	7	3,685,325	5,597,710	-1,912,385	-34.2%
US Department of Transportation	22	10	12	12	3,232,688	2,687,110	545,578	20.3%
Other Federal Agencies*	44	40	19	37	2,537,651	3,956,740	-1,419,089	-35.9%
Federal Agency Total	450	432	252	256	51,854,044	49,057,609	2,796,435	5.7%
State of Michigan	34	39	21	24	2,734,796	2,413,437	321,359	13.3%
Industrial	107	120	97	115	4,618,776	5,165,810	-547,034	-10.6%
Foreign	5	8	11	7	1,604,541	697,583	906,958	130.0%
All Other Sponsors	73	53	31	34	2,266,353	1,435,285	831,068	57.9%
Subtotal	669	652	412	436	63,078,510	58,769,724	4,308,786	7.3%
Gifts**	N/A	N/A	191	196	2,788,239	4,024,476	-1,236,237	-30.7%
Crowdfunding	N/A	N/A	13	7	11,063	214,323	-203,260	-94.8%
Grand Total	669	652	616	639	65,877,812	63,008,523	\$2,869,289	4.6%

* National Endowment for the Arts and Humanities, US Dept of Commerce, US Dept of the Interior, US Dept of Labor, US Environmental Protection Agency, US Dept of Justice

**Gifts represent non-contractual funding from corporations, foundations, associations and societies in support of academic programs, scholarships/fellowships, student design & enterprise, research, youth programs and special programs.

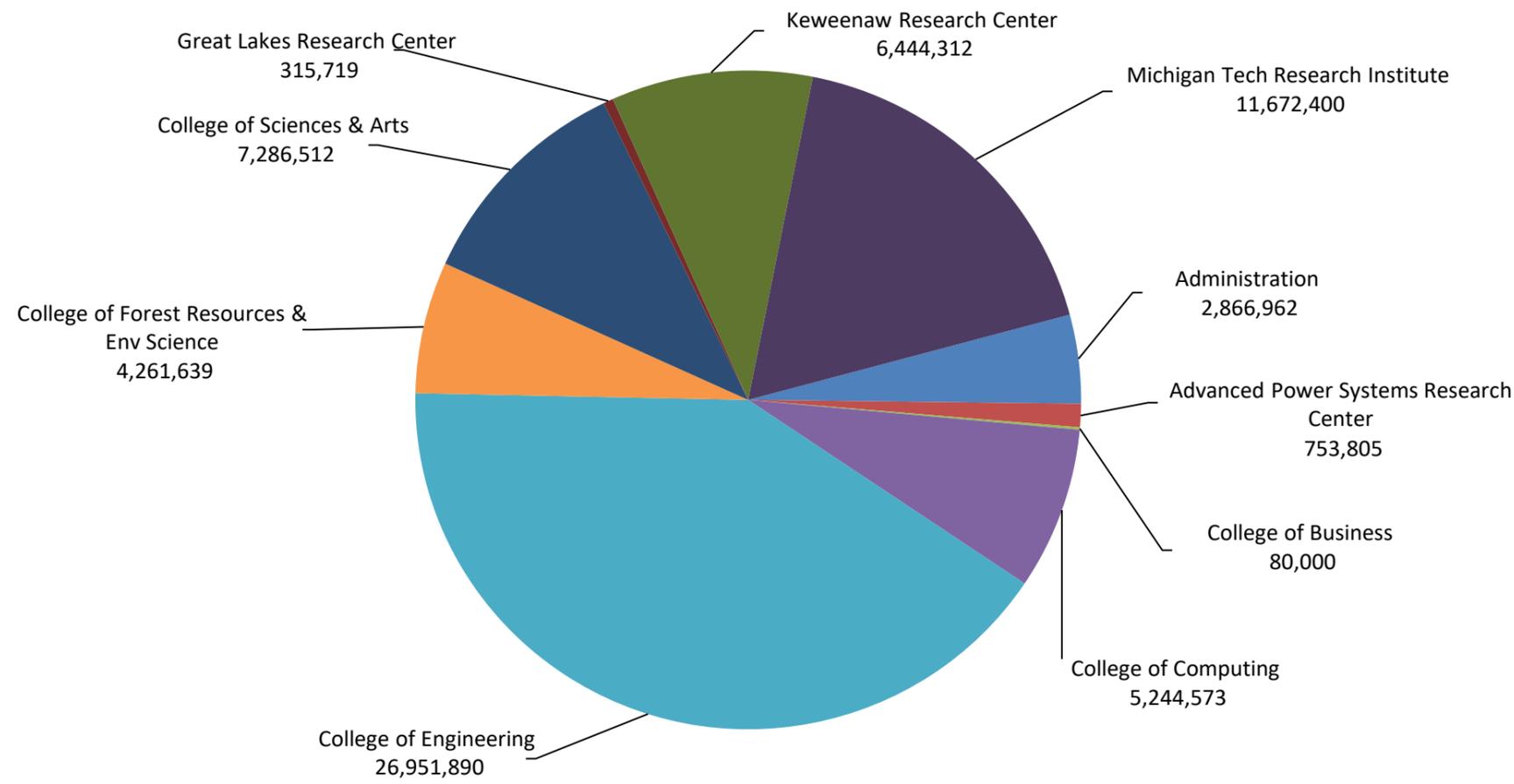
Formal Session of the Board of Trustees - Research

Vice President for Research
Fiscal Year 2023
3rd Quarter
Ended Mar 31, 2023
TOTAL: \$65,877,812

Percentages of Tenured & Tenure Track Faculty (as either PI or Co-PI)

Submitting Proposals since 07/01/2022
60.9%

On Active Projects as of 3/31/2023
60.3%



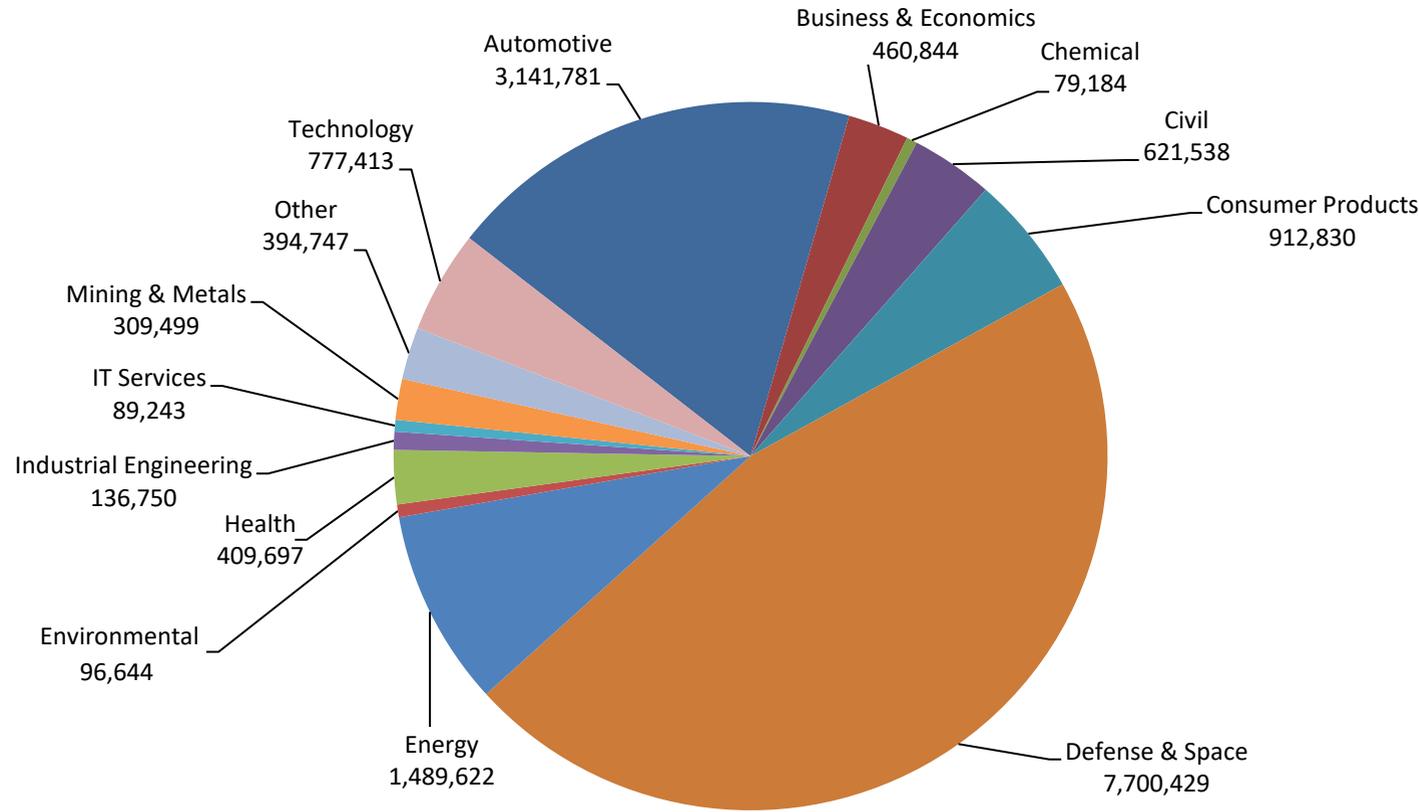
SPO & OIC Metrics ¹	Administration	Advanced Power Systems Research Center	College of Business	College of Computing	College of Engineering	College of Forest Resources & Env Science	College of Sciences & Arts	Great Lakes Research Center	Keweenaw Research Center	Michigan Tech Research Institute	Totals	Fiscal Comparison	Percent Change
Proposals Submitted	17	8	5	44	297	80	91	21	49	57	669	652	2.6%
Awards Received	106	6	4	24	246	62	46	11	46	65	616	639	-3.6%
Federal	704,337	-	-	3,595,616	15,777,693	2,955,010	6,307,109	208,946	3,724,022	2,774,210	36,046,943	29,800,289	21.0%
Federal Pass-Through	4,000	248,009	-	1,078,245	5,704,161	555,492	519,938	70,377	55,601	7,571,278	15,807,101	19,257,320	-17.9%
Foreign	-	-	-	-	397,900	-	-	25,218	-	1,181,423	1,604,541	697,583	130.0%
Gifts	1,649,614	-	70,000	150,290	480,403	202,500	183,382	-	2,050	50,000	2,788,239	4,024,476	-30.7%
Crowdfunding	906	-	-	-	5,578	879	-	3,700	-	-	11,063	214,323	-94.8%
Industry	10,000	366,948	-	17,500	1,311,153	217,749	36,440	1,347	2,657,639	-	4,618,776	5,165,810	-10.6%
Other	30,000	28,848	10,000	93,397	1,613,067	145,909	239,643	5,000	5,000	95,489	2,266,353	1,435,285	57.9%
State of MI	468,105	110,000	-	309,525	1,661,935	184,100	-	1,131	-	-	2,734,796	2,413,437	13.3%
Total \$ by Division	2,866,962	753,805	80,000	5,244,573	26,951,890	4,261,639	7,286,512	315,719	6,444,312	11,672,400	65,877,812	63,008,523	4.6%
Fiscal Comparison	4,100,413	1,678,718	172,799	2,114,989	26,400,948	3,547,066	9,232,848	1,385,308	5,159,441	9,215,993	63,008,523		
Percent Change	-30.1%	-55.1%	-53.7%	148.0%	2.1%	20.1%	-21.1%	-77.2%	24.9%	26.7%	4.6%		
Disclosures Received ²	4.55%	-	-	15.45%	57.27%	-	22.73%	-	-	-	11	26	-57.7%
Nondisclosure Agreements	1	6	-	2	40	1	-	-	8	13	71	67	6.0%
Patents Filed or Issued ²	-	-	-	-	64.29%	-	35.71%	-	-	-	7	14	-50.0%
License Agreements	-	-	-	-	5	-	-	-	-	2	7	6	16.7%
Gross Royalties ²	-	-	-	0.87%	94.78%	-	4.35%	-	-	-	47,594	69,444	-31.5%

¹ Combined Metrics from both the Sponsored Programs Office (SPO) and Office of Innovation & Commercialization (OIC)

² Percentages reflect the proportional contribution from each Division (calculated by dividing the sum of the fractional contributions of all inventors for each unit by the total number of inventors).

Formal Session of the Board of Trustees - Research

**Sponsored Awards
-Industry-
COMBINED
Fiscal Year 2023
3rd Quarter
Ended March 31, 2023
TOTAL: \$16,620,221**



Industry Segment	Proposals Submitted		Awards Received		Awards Received (\$)		Variance \$	Variance %
	FY '23 as of 3/31	FY '22 as of 3/31	FY '23 as of 3/31	FY '22 as of 3/31	FY '23 as of 3/31	FY '22 as of 3/31		
Automotive	39	38	59	67	3,141,781	3,345,012	-203,231	-6.1%
Business & Economics	5	3	13	10	460,844	24,225	436,619	1802.3%
Chemical	1	6	4	6	79,184	231,000	-151,816	-65.7%
Civil	4	4	32	23	621,538	117,012	504,526	431.2%
Consumer Products	22	24	45	35	912,830	1,130,791	-217,961	-19.3%
Defense & Space	22	50	42	50	7,700,429	6,289,249	1,411,180	22.4%
Energy	4	8	20	18	1,489,622	306,031	1,183,591	386.8%
Environmental	9	4	14	15	96,644	99,388	-2,744	-2.8%
Health	5	9	12	16	409,697	874,966	-465,269	-53.2%
Industrial Engineering	8	5	6	7	136,750	89,087	47,663	53.5%
IT Services	8	3	10	10	89,243	94,110	-4,867	-5.2%
Mining & Metals	14	11	21	20	309,499	455,901	-146,402	-32.1%
Other	13	12	23	20	394,747	298,984	95,763	32.0%
Technology	9	13	10	15	777,413	263,508	513,905	195.0%
Total	163	190	311	312	16,620,221	13,619,264	3,000,957	22.0%

*Gifts represent non-contractual funding from corporations, foundations, associations and societies in support of academic programs, scholarships/fellowships, student design & enterprise, research, youth programs and special programs.

Michigan Technological University
Total Research Expenditures by College/School/Division
Fiscal Year 2023 & 2022
As of March 31, 2023 and March 31, 2022

College/School/Division	FY2023	FY2022	Variance	%
Administration*	5,202,327	4,368,282	834,045	19.1%
Advanced Power Systems Research Center (APSRC)	1,100,592	780,990	319,602	40.9%
College of Business	1,529,094	1,505,978	23,116	1.5%
College of Computing	4,317,183	3,837,691	479,492	12.5%
College of Engineering	27,051,258	22,973,282	4,077,976	17.8%
College of Forest Resources & Environmental Science	5,785,479	4,828,030	957,449	19.8%
College of Science & Arts	13,163,325	12,106,789	1,056,536	8.7%
Great Lakes Research Center (GLRC)**	1,106,360	1,000,834	105,526	10.5%
Pavlis Honors College	N/A	N/A	N/A	N/A
Keweenaw Research Center (KRC)	6,438,471	8,793,585	(2,355,114)	-26.8%
Michigan Tech Research Institute (MTRI)	9,407,674	9,333,981	73,693	0.8%
Total	75,101,763	69,529,442	5,572,321	8.0%

*Includes the Vice Presidents, Provost, and others who report to a VP, Provost or the President. Except for the research institutes that report to the VPR.

**Includes GLRC department (non-academic researchers) expenditures only. All other GLRC center expenditures are shown in the researchers' respective colleges.

X-C. Advancement & Alumni Relations

Advancement and Alumni Engagement Narrative Michigan Tech Board of Trustees April 28, 2023

2022-2023 Goals and Initiatives to be achieved in collaboration with administrative and academic leadership and the Michigan Tech Fund Board of Directors.

FY23 AAE Working Goals

- Initiate Campaign Leadership Phase
- Prepare campaign materials including: Case for Support, Campaign View Book, Gift Recognition plan and other materials
- Develop a comprehensive volunteer management strategy
- Launch our Days of Giving
- Host multiple regional events preparing for the Leadership phase of our campaign
- Ensure Donor integrity and intention in every aspect of our business
- Add \$3 million cash to the endowment

FY23 MTF Working Goals

- Donors First- integrity and intention in every aspect of our business
- Move into Campaign Execution Phase
- Review of the MTF Investment Policy
- Consider alternative asset classes
- Enhance cash flow management
- Leverage New Governance Committee

Highlights

- Raised \$36.3 M to date, 87% of the \$41.77M goal (as of March 31, 2023)
- \$44 M in outstanding asks from individuals
- Campaign Preparation:
 - Finalized Case Statement
 - Hosted college dean and CCS campaign meeting
 - Hosted campaign orientation meeting with staff across campus
 - Identified naming possibilities across campus
 - Presented campaign updates at the March 22 University Senate meeting
- Organizational
 - Expanding our team to include Gift Processing to streamline customer service and enhance donor stewardship.
 - New hires:
 - Executive Director for Advancement Services
 - Vacant positions:
 - Assistant Director for Major Gifts - College of Engineering
 - Retirement:
 - Assistant Vice President for Advancement Services, June 30, 2023
- Over 100 guests attended donor hosted events in Florida
- Advancement and academic leadership toured Nucor's Gallatin facility and raw materials scrapyard steel in Newport, KY
- Ended the hockey season with hosting the NCAA playoff in the MacInnes Presidential Hockey Suite

Fundraising totals as of March 31, 2023

- \$11,278,500 in planned gifts
- \$1,640,362 in realized planned gifts
- \$4,813,158 in major outright gifts and pledges
- \$2,366,274 in annual gifts under \$10,000
- \$2,057,470 in corporate support
- \$883,717 in foundation gifts
- 56 illustrations, proposals, and gift agreements were provided for donors
- 42 executed gift agreements

Principal Giving

As we enter the Leadership phase of the campaign, our focus has been on the identification, strategy, cultivation and solicitation of our most interested and capable alumni and friend donors.

FY23/FY24 Pending Gifts:

- We are working on securing over \$11 million gifts for the construction of the alumni gateway/arch, scholarships in the College of Sciences and Arts, with an emphasis on Physics, Chemistry and Mathematics and for a combination of an endowed faculty position and scholarship fund in Civil and Environmental Engineering. We are also finalizing several 7 figure gift commitments for the College of Engineering, College of Business, College of Forest Resources and Environmental Science and/or the Husky Child Care initiatives and a gift to benefit the student experience of Michigan Tech.

Advancement and Gift Planning

- Expanding our team to include Information Services, Stewardship, and Gift Processing to bring advancement foundational support and frontline fundraisers together for campaign readiness. Hired executive director to lead advancement services.
- Deans and Campus Units' collaborative meetings for May will be focused on building corporate and foundation outreach plans. Advancement staff are coordinating strategic donor work for deans and faculty.
- Launched Michigan Tech's second day of giving over Winter Carnival, raising \$1,289,142 from 1,243 gifts, including over \$700,000 in challenge and matching gifts secured by the major gifts team. There were 311 first-time donors, 34 of whom are Michigan Tech employees.
- Carrying this crowdfunding momentum to raise funds for the Pep Band and Blizzard to travel to the NCAA hockey tournament and a soft launch of new fundraising pages for Athletics.
- Conducting internal audits of pending and anticipated solicitations in preparation for CRM migration and ongoing campaign measurement.
- Posting for an assistant director for major gifts for the College of Engineering with expected hire in May 2023.

Advancement Services

- CRM data verification continues with Banner data to Feb 24. Work has begun on customizing the system with dashboards views and reports. Staff training will begin in late May.
- Communications and marketing support for Alumni Engagement initiatives across the country continues to increase.
- Donor relations is providing recommendations and examples of best practices to all units on campus. A stewardship matrix is being developed for campaign donors which includes

opportunities for personal interaction, demonstrating impact, insider involvement and public recognition.

Alumni Engagement

- Events
 - AE professional staff set a goal to host 100 [Regional events](#) this year, currently 90+ in the works or already hosted.
 - Reunion 2023: August 3-5 [Preliminary schedule online now](#)
 - Online registration will open in May
 - The second-ever [Traveling Tech Talks](#) event will be hosted in Brookfield, WI on May 18, 2023.
- Volunteerism
 - Alumni Board of Directors partnered with AE staff to host their first-ever crowdfunding campaign to directly support expansion of [SISP into the newly-branded "Alumni Resource Matchmaking" program](#). The ARM crowdfunding campaign ran from April 3-April 14 and raised money for (4) unique, featured student organizations and initiatives.
 - [Time & Talent](#) continues to build an alumni roster, goal to host this group of alumni in October 2023.
- Communications
 - Continue to work together on stronger, more intentional strategy around all pieces of communication: monthly enewsletter, social media, webpages, event promotion, targeting segments more thoughtfully etc.
 - Working with Alumni Board of Directors on blog project
- Special projects
 - [Alumni-student programming revitalized](#) throughout the year into existing student traditions. First event around this new schedule: finals week trail mix in the Library with a free gift.

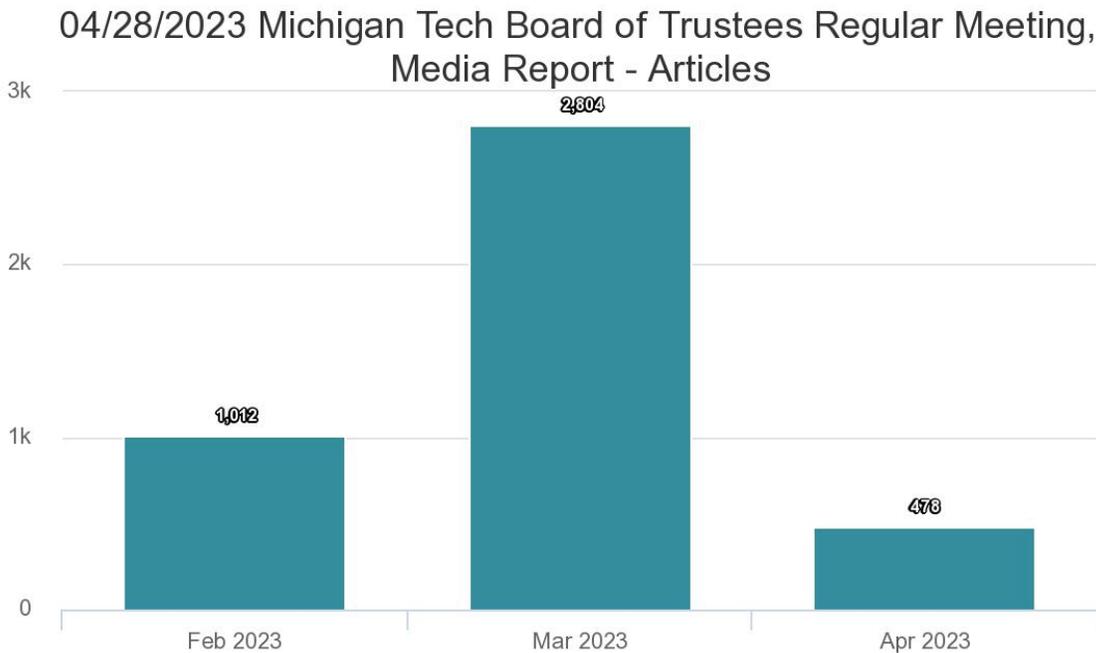
X-D. Media Coverage

Media Report: Feb. 10 to Apr. 10 2023
 Michigan Technological University
 Regular Meeting of the Board of Trustees
 Apr. 28, 2023

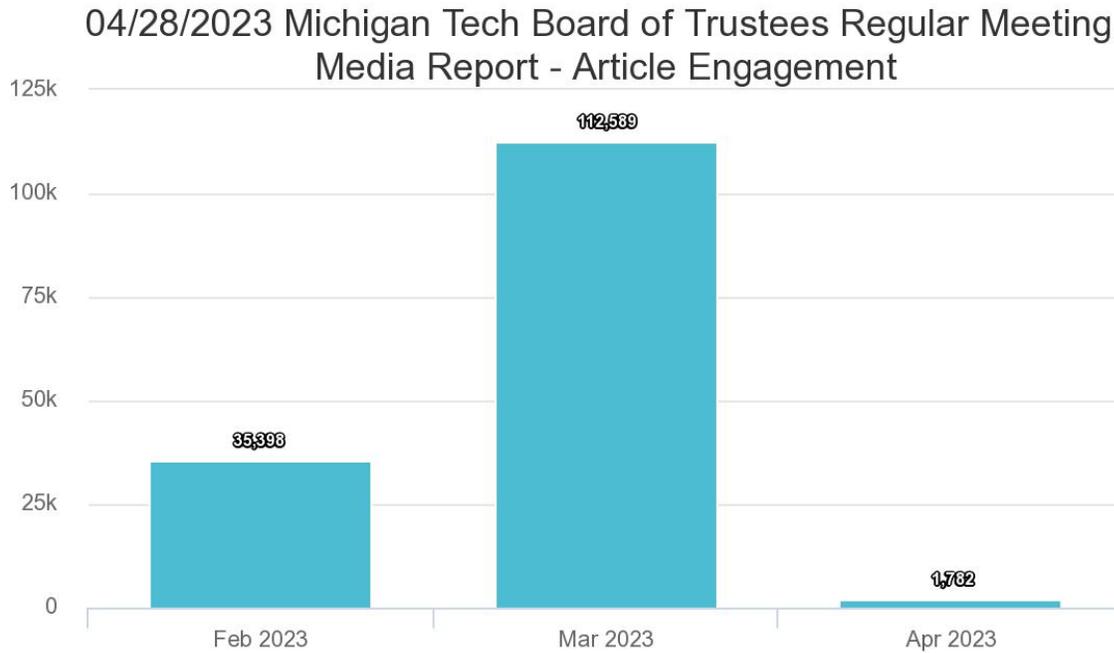
Overview

Articles	4,294
Total engagement	149.77K
Average engagement	39
Journalist shares	574
Journalist reach	~ 16.81M
Average unique visitors per month (UVM)	~ 2.49M
Total UVM	~ 9.35B

Between Feb. 10 and Apr. 10, 2023, a total of 4,294 online articles mentioned Michigan Technological University:

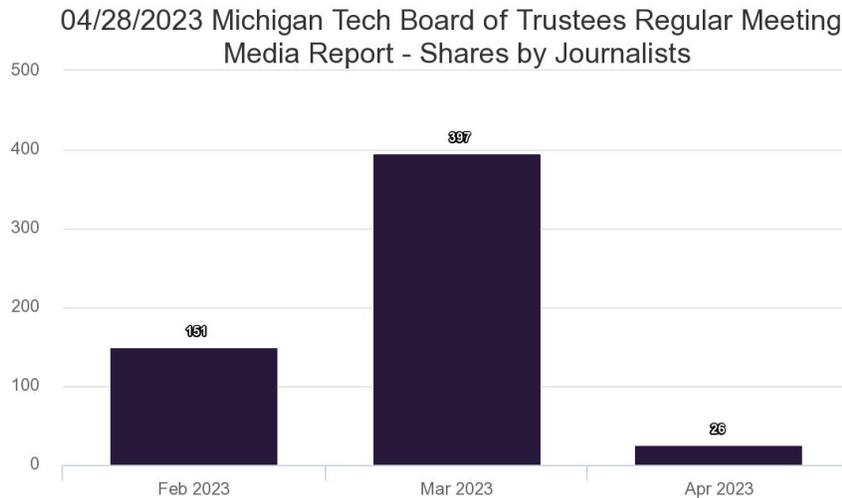


Those 4,294 articles were shared, commented on, or liked on social media roughly 149.77K times, for an average engagement of 39 shares, comments, or likes per article:

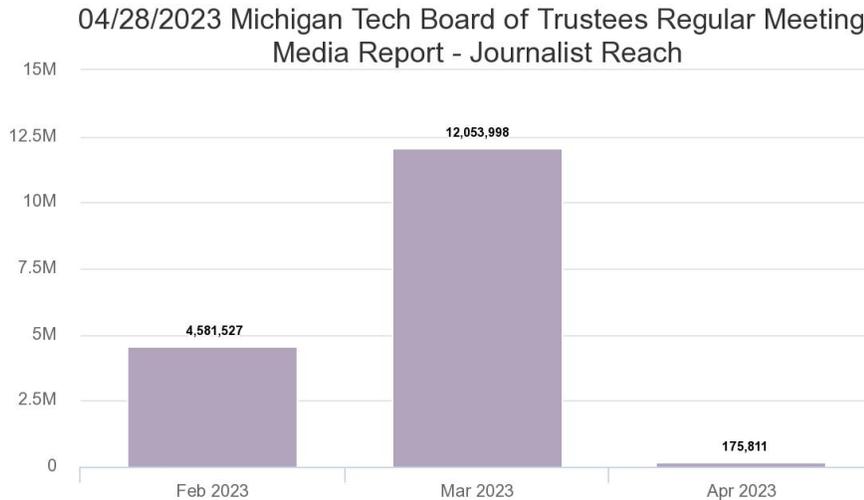


MUCK RACK

Journalists shared the articles on Twitter 574 times, resulting in a reach of roughly 16.81 million people:



MUCK RACK



MUCK RACK

News Highlights:

Research News

Yun Hang Hu (MSE) was quoted and Ph.D. candidates Hanrui Su and Wei Zhang (materials science and engineering) were mentioned by [Tech Xplore](#) and Australia's [Mirage News](#) in stories about a new type of fuel cell developed at Michigan Tech. Hu was mentioned in similar stories by [Interesting Engineering](#), [Head Topics](#), [Green Car Congress](#) and [Inceptive Mind](#).

Raymond Shaw and Alex Kostinski (Physics) were quoted by [Reuters](#) in a story examining possible explanations for three objects shot down by the U.S. military over North America last week. The story was picked up by 32 outlets worldwide, including [MSN](#), [U.S. News and World Report](#), Australia's [ABC](#) and the [Gazette](#) in Colorado Springs.

Two Michigan Tech projects were named by the [Department of Environment, Great Lakes, and Energy](#) in an announcement of \$2,037,771 in grants awarded by EGLE for projects across the state using scrap tire materials. MTU will receive \$901,363 for the two road paving projects in Bay and Saginaw counties in the Lower Peninsula. The announcement was picked up by [Blue Water Healthy Living](#), the [Keweenaw Report](#), [WNEM TV5](#) of Saginaw, [WILX News 10](#) of Lansing, [Midland Daily News](#), [ABC 12 News](#) and [Rubber World](#).

Stephen Techtmann (BioSci) and Michigan Tech were mentioned by [Axios](#) in a story discussing methods of recycling plastic and waste materials into food for astronauts in deep space.

General News

[MLive](#) covered Michigan Tech's inclusion on the list of the top 50 best value public colleges in the U.S. published by the [Princeton Review](#). MTU was ranked No. 32.

The [Detroit Free Press](#), [Bridge Michigan](#), [Detroit News](#), [MLive](#), [WLUC TV6](#) and multiple other Michigan news outlets covered the new \$10,000 Michigander EV Scholars scholarship promoting electric vehicle and mobility careers. The scholarship program will be offered to students at Michigan Tech, Michigan State University and the University of Michigan.

Andrew Storer (Provost) was quoted by [WLUC TV6](#), [UPWord](#), [WJMN Local 3](#) and [WZMQ 19 News](#) in stories about Michigan Tech's plans to absorb Finlandia University's nursing program which will add a four-year nursing program at the University, with faculty and staff from Finlandia's program.

Cassy Tefft de Muñoz (CEO) and undergraduate student Elsa Meyer (civil engineering) were virtual guests last Thursday (March 23) on The Weather Channel's "[America's Morning Headquarters](#)" program. Tefft de Muñoz and Meyer talked about the Michigan Tech Mind Trekkers traveling STEM festivals and demonstrations, and explained the popular banana piano demo while host Jim Cantore tried it out.

Yu Cai (AC/CS/ICC), Dennis Livesay (CC), and master's students Gary Tropp and Dev Sanghani (cybersecurity) were quoted by [WJMN Local 3](#) and the [Keweenaw Report](#) in stories about Michigan Tech's designation as a National Center of Academic Excellence in Cyber Defense by the National Security Agency. Cai and Tropp were quoted in Local 3's story. Cai, Livesay and Sanghani were quoted by the Keweenaw Report.

X-E. Employee Safety Statistics



EMPLOYEE SAFETY STATISTICS YEAR-TO-DATE

Jan - March 2022/2023

	Category	Years	Employee Classification							Total
			AFSCME	Faculty	Non-Exempt	POA	Professional	Temporary	UAW	
Number of Recordable Injuries	Injury Only w/Medical - No Lost Time	2022	0	0	0	0	0	0	0	0
		2023	1	0	0	0	0	0	0	1
	Lost Time Cases	2022	0	0	0	0	1	0	0	1
		2023	2	0	0	0	0	0	0	2
	Restricted Work Cases	2022	0	0	0	0	0	0	0	0
		2023	1	0	0	0	0	0	0	1
Occupational Safety and Health Administration (OSHA) Recordable Injuries (Total of above)	2022	0	0	0	0	1	0	0	1	
	2023	4	0	0	0	0	0	0	4	
Number of Days	Injury Lost Time ³	2022	0	0	0	0	5	0	0	5
		2023	8	0	0	0	0	0	0	8
	Restricted Work Days ³	2022	0	0	0	0	0	0	0	0
		2023	15	0	0	0	0	0	0	15
Hours Worked	Total Work Hours	2022	58,731	211,005	19,888	4,103	262,067	13,158	34,941	603,893
		2023	62,179	212,917	19,850	3,950	276,403	14,407	35,540	625,246
	Percentage of Work Hours	2022	9.7%	34.9%	3.3%	0.7%	43.4%	2.2%	5.8%	100.0%
		2023	9.9%	34.1%	3.2%	0.6%	44.2%	2.3%	5.7%	100.0%
Rates	Lost Time Case Rate ¹	2022	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.3
		2023	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.6
	Frequency Rate ² (Recordable)	2022	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.3
		2023	12.9	0.0	0.0	0.0	0.0	0.0	0.0	1.3

OSHA has established specific calculations that enable the University to report the Recordable Injuries, Lost Time Case Rates and Frequency Rates. The Standard Base Rate (SBR) calculation is based on a rate of 200,000 labor hours which equates to 100 employees who work 40 hours per week for 50 weeks per year. Using the SBR allows the University to calculate their rate(s) per 100 employees.

1 The Lost Time Case Rate is calculated by multiplying the number of Lost Time Cases by 200,000 then dividing by the labor hours at the U

2 The Frequency Rate is calculated by multiplying the number of recordable cases by 200,000 then dividing by the labor hours at the Unive

3 The number of days are total days for the life of the cases first reported during this period.

The Bureau of Labor Statics 2021 Injury, Illness, and Fatalities, Table 1 reports for Colleges and Universities; the average LOST TIME CASE RATE of days away from work was 0.6 and the average FREQUENCY RATE was 1.4.

X-F. Disposal of Surplus property

**Michigan Technological University
Surplus Property Sales
January 1, 2023 - March 31, 2023**

Date	Description	Amount
01/05/23	Case 721F Loader Bucket	\$ 2,500.00
03/07/23	2006 Ford E350 Econoline Van	200.00
03/24/23	Miscellaneous scrap metal	79.68
Total		\$ 2,779.68

X-G. Summary of Scholarships, Awards, and Grants (Board Policy 9.3)

Board of Trustees Summary of Scholarships, Awards, and Grants 2022-23 Fall and Spring

	*Total 22-23 Fall/Spring	
	# Students Paid	\$ Total Paid
INSTITUTIONAL		
GRANT ¹	2220	\$ 15,013,933.71
LOAN ²	37	\$ 102,022.00
SCHOLARSHIP ³	4745	\$ 39,358,921.78
**OTHER	144	\$1,375,142
TOTAL INST	\$55,850,020	
SPONSORED		
SCHOLARSHIP	1170	\$ 3,721,406.07
TOTAL SPONSORED	\$3,721,406	
FEDERAL		
GRANT	1059	\$ 5,030,572.00
LOAN	2687	\$ 23,956,557.00
WORK-STUDY ⁴	159	\$ 200,407.99
TOTAL FEDERAL	\$29,187,537	
STATE		
GRANT	1060	\$ 3,908,179.15
SCHOLARSHIP	3	\$ 9,000.00
TOTAL STATE	\$3,917,179	
EXTERNAL		
LOAN	906	\$ 15,324,104.00
SCHOLARSHIP	856	\$ 2,520,631.23
TOTAL EXTERNAL	\$17,844,735	
TOTAL AID	\$110,520,877	

*Numbers include aid paid for fall 2022 and spring 2023. Summer semester awarding is still in progress and ongoing.

**Includes Tuition Reduction Incentive Program, Senior Citizen credits, and Military Family Education Award.

¹ Grants are gift aid offered based on financial need.

² Loans consist of borrowed funds that must be repaid.

³ Scholarships are gift aid offered based on merit, financial need, or a combination of both.

⁴ Work-Study is a program that provides funding that students can earn through part-time employment.

Fund Name	Type	# Paid for 2023 Fall/Spring	\$ Amount Paid Fall/Spring
Diversity Incentive Grant	GRANT	14	\$ 229,788.00
Part-Time Enrollment Support	GRANT	6	\$ 7,434.00
Michigan Indian Tuition Grant	GRANT	42	\$ 727,923.50
University Student Aid Grant	GRANT	2076	\$ 13,665,124.50
University Student Grant	GRANT	105	\$ 350,663.71
Marie Ryding Hardship Grant	GRANT	20	\$ 33,000.00
TECHAID Loan	LOAN	37	\$ 102,022.00
906 Scholarship	SCHL	124	\$ 109,626.00
Air Force Room & Board	SCHL	8	\$ 54,811.00
Athletic Grant-A.D. Assistant	SCHL	9	\$ 28,544.00
Athletic Grant-eSports	SCHL	50	\$ 118,250.00
Athletic Grant-Football	SCHL	113	\$ 1,170,147.00
Athletic Grant-Hockey	SCHL	32	\$ 937,202.49
Athletic Grant-M Basketball	SCHL	18	\$ 423,599.16
Athletic Grant-Men CC & TF	SCHL	25	\$ 152,472.00
Athletic Grant-M Nordic Ski	SCHL	13	\$ 112,834.00
Athletic Grant-M Tennis	SCHL	8	\$ 121,200.00
Athletic Grant-Volleyball	SCHL	20	\$ 388,766.34
Athletic Grant-W Basketball	SCHL	15	\$ 367,633.96
Athletic Grant-Women CC & TF	SCHL	26	\$ 180,546.00
Athletic Grant-W Nordic Ski	SCHL	10	\$ 104,334.00
Athletic Grant-W Soccer	SCHL	30	\$ 368,835.19
Athletic Grant-W Tennis	SCHL	9	\$ 255,978.99
Army Room & Board	SCHL	15	\$ 106,608.00
Arctic Warrior Award	SCHL	9	\$ 90,000.00
Blizzard Scholarship	SCHL	3	\$ 7,000.00
Professional Development Scholarship	SCHL	2	\$ 7,596.00
VPA Talent Award	SCHL	53	\$ 47,250.00
Detroit Promise Scholarship	SCHL	6	\$ 40,978.65
FIRST Scholarship MI Tech	SCHL	35	\$ 134,500.00
Global Campus Graduate Scholarship	SCHL	6	\$ 11,334.00
Global Campus UG Scholarship	SCHL	2	\$ 13,000.00
Grad Schl Academic Excellence Award	SCHL	24	\$ 108,000.00
Husky Innovation Leaders Award	SCHL	126	\$ 179,250.00
International Ambassador Scholarship	SCHL	23	\$ 196,425.00
Impact Scholarship - COB	SCHL	59	\$ 194,763.00
MI MTU Alumni Legacy Award	SCHL	645	\$ 154,625.00
Wade McCree Scholarship	SCHL	1	\$ 9,962.00
MTU Partner Pathway Award	SCHL	18	\$ 18,000.00
Michigan Tech Transfer Achievement	SCHL	99	\$ 157,750.00
Michigan Tech Transfer Distinction	SCHL	192	\$ 647,750.00

Fund Name	Type	# Paid for 2023 Fall/Spring	\$ Amount Paid Fall/Spring
National Business Scholars	SCHL	69	\$ 1,315,000.00
National Business Scholars	SCHL	8	\$ 16,000.00
National Copper Scholars	SCHL	69	\$ 629,000.00
National Gold Scholars	SCHL	214	\$ 2,845,500.00
National Platinum Scholars	SCHL	313	\$ 4,733,500.00
National Silver Scholars	SCHL	116	\$ 1,343,000.00
National Achievement Scholarship	SCHL	3	\$ 16,771.00
National Distinction Scholarship	SCHL	11	\$ 85,000.00
National Excellence Scholarship	SCHL	15	\$ 145,835.00
National Leading Scholar	SCHL	59	\$ 1,016,000.00
National Prominence Scholarship	SCHL	20	\$ 190,409.00
National Achievement Transfer	SCHL	9	\$ 36,000.00
National Distinction Transfer	SCHL	16	\$ 137,500.00
Presidential Copper Scholars	SCHL	182	\$ 175,000.00
Presidential Gold Scholars	SCHL	892	\$ 2,581,571.00
Presidential Platinum Scholars	SCHL	964	\$ 5,081,396.00
Presidential Silver Scholars	SCHL	582	\$ 1,133,417.00
Presidential Achievement Scholarship	SCHL	23	\$ 21,313.00
Presidential Distinction Scholarship	SCHL	56	\$ 91,041.00
Presidential Excellence Scholarship	SCHL	29	\$ 81,188.00
Presidential Leading Scholar	SCHL	144	\$ 1,387,000.00
University Room Scholarship	SCHL	13	\$ 80,724.00
MTU Leading Scholars Award	SCHL	32	\$ 1,045,050.00
Summer Youth Scholars Award	SCHL	38	\$ 82,500.00
Create Your Success Scholarship	SCHL	181	\$ 928,000.00
Supplemental University Student Award	SCHL	296	\$ 720,941.00
Michigan Tech Excellence Award	SCHL	2109	\$ 6,154,367.00
College Partner Pathway Award	SCHL	14	\$ 266,327.00
Tuition Reduction Incentive Program		129	\$ 1,283,885.19
Military Family Education Award		9	\$ 87,840.00
Senior Citizen Benefit		16	\$ 72,038.50