

Curriculum Vitae
William W. Predebon, Ph.D.

Personal Data

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Education:

1965 B.S., Engineering Science, University of Notre Dame
1968 M.S., Engineering Mechanics, Iowa State University
1970 Ph.D., Engineering Mechanics, Iowa State University

Experience:

August 1, 1997 - Present Chair, Mechanical Engineering-Engineering Mechanics Department,
Michigan Technological University

June 30, 1997-
July 31, 1997 Interim Chair and Director of Graduate Studies, Mechanical Engineering-
Engineering Mechanics Department, Michigan Technological University

1993- June 30, 1997 Associate Chair and Director of Graduate Studies, Mechanical Engineering-
Engineering Mechanics Department, Michigan Technological University

1984-present Professor of Engineering Mechanics, Mechanical Engineering -
Engineering Mechanics Department, Michigan Technological
University

1992, 1991, 1990 Summers - Consultant (1 month) at Alliant Techsystems Inc. (formerly
Honeywell Inc.) Hopkins, MN

1989, 1988, 1987 Summers – Consultant (1-1 ½ month) at Honeywell Inc., Defense Systems
division, Minnetonka, MN

1989, 1988, 1986 Summers – Consultant (1-1 ½ month) at Southwest Research Institute, San
Antonio TX

1978-1984 Associate Professor of Engineering Mechanics, Mechanical Engineering-
Engineering Mechanics Department, Michigan Technological University

1976-1978 Assistant Professor of Engineering Mechanics, Mechanical Engineering--
Engineering Mechanics Department, Michigan Technological University

1976	Summer – Faculty Research Participation appointment, Argonne national Laboratory, Argonne, IL
1975-1976	Visiting Assistant Professor of Engineering Mechanics, Mechanical Engineering-Engineering Mechanics Department, Michigan Technological University
1971-1975	Mechanical Engineer, U.S. Army Ballistic Research Laboratory, Aberdeen Proving Grounds, MD
1965-1980	U.S. Army Reserve Officer, Honorable Discharge-1980, Rank at Discharge, Captain

Honors & Awards:

- MTU First Annual “King” Award “For believing and continuing the dream”. Awarded by the Black Student Organization in honor of Dr. Martin Luther King Jr., January 20, 2007.
- MTU W. R. Shapton Outstanding Service Award “In recognition of dedication and distinguished service to the Michigan Tech student branch of the Society of Automotive Engineers (SAE)”, Spring 2002
- MTU Academy of Teaching Excellence, inducted in 1998 with its first inductees
- Michigan Association of Governing Boards of Colleges and Universities Distinguished Faculty Award, 1985
- 1984 MTU Distinguished Teaching Award
- Commendation, U.S. Army Ballistic Research Lab., Aberdeen Proving Ground, MD, December 1973.

Patents:

- **Patent No.: 5,443,773**, Issue Date: August 22, 1995, “Process for Producing High Strength Alumina”, J.M. Staehler, W.W. Predebon, B.J. Pletka
- **Patent No.: 5,352,643**, Issue Date: October 4, 1994, “High Strength Alumina and Process for Producing Same”, J.M. Staehler, W.W. Predebon, B.J. Pletka

Major Accomplishments as Department Chair: 1997-2006 (In chronological order starting from 1997)

- Developed and implemented the first Department Strategic Plan in 1998 with regular updates and prioritization of tactics
- Completed two successful ABET accreditation visits (AY1998-1999 and AY 2004-2005) and received Next General Review (NGR) accreditation at 6 years, which is the highest accreditation.
- Designated and implemented a major curriculum revision, MEEM 2000 Curriculum, started from a clean sheet of paper
- Designated and implemented a new industry-supported Senior Design sequence at \$15,000.00 each in 2000, within three years it ramped up to 35+ projects per year. The entire operation and infrastructure are self-supporting through external funds.
- Completed the Department’s first fund raising campaign in support of the curriculum revision: MEEM Building for the Future Campaign, Phase I:
 - Focus on the Undergraduate Program
 - Raised \$3.6 million, exceeding the goal of \$2.8 million by 28.6%

- Funds used for :
 - Four new labs and equipment: Design and Creativity Centers I & II, Product Realization Center, Student Success Center
 - Four conference rooms
 - Faculty and staff lounge
 - Refurbished faculty, staff, and department offices
- Lab and equipment replacement fund established (through lab fees)
- Designed and implemented the Department's second Campaign, Building for the Future Phase II, Endowing Excellence:
 - Focus : People and Endowments
 - Goal of \$52 million in endowment and \$2 million in graduate lab support by 2010
 - Raised over \$13 million to date
 - Secured the first endowed chair, the Richard and Elizabeth Henes Chair, in Mechanical Engineering in January 2002 with a \$2 million endowment. Current chair holder is Dr. John Sutherland.
- Undergraduate Program ranked 25th (top 16%) nationally and 2nd in Michigan amongst 148 doctoral granting Mechanical Engineering Departments in the U.S. by the 2005 U.S. News & World Report: America's Best Colleges
- Graduate Program ranked 50th (top 31%) nationally and 3rd in Michigan among 163 doctoral granting Mechanical Engineering Departments in the U.S. by the 2007 U.S. News & World Report: America's Best Graduate Schools; the third consecutive year ranked in the top 50.
- Research expenditures ranked 26th by NSF in FY 2004 (latest ranking) among all mechanical engineering departments in the U.S.
- Developed and implemented a distance learning Ph.D. degree in ME-EM in 1995 (first in the U.S.), a distance learning global M.S. research degree with the University of Bradford, England, a distance learning course-work only M.S. degree, and a distance learning Design Engineering Certificate, all with industry and customer driven (industrial partners: Ford, GM, TACOM, Visteon, MTS, Mayo, Harley – Davidson)
- Balanced the Department budget for the entire nine years as Department Chair
- Produced the first Department Annual Reports: 2004 and 2005
- Developed the guidelines which were approved by faculty for the inclusion of graduate student advising with an emphasis on externally supported students in the determination of teaching assignments
- Development of a new department structure to support inter-area, interdisciplinary, inter-college, inter-university research which includes Research Caucuses, a Director of Research and Research Committee that has been approved as a temporary Charter change with a three (3) year trial period and evaluation.

Research Interests:

Ceramic processing, characterization and behavior, shock deformation including microstructural effects and dynamic fracture of ceramics and metals, shock waves, wave propagation, impact phenomena, computational modeling and simulation, hydrocodes, explosive-metal interaction, fragmentation.

Teaching Interests:

Prior to Fall Quarter 1993 I either regularly taught or taught every several years the following courses. However, as coordinator, I chose to teach Dynamics at least once a year and did so from 1980-1993.

Undergraduate: Statics, Dynamics, Mechanics of Materials, Fluid Mechanics, Vibrations, Intermediate Mechanics of Materials (senior level), Dynamics II (senior level). Developed and taught a video-taped Dynamics course to students at **General Motors, GM Technical Center**, Warren, MI, Fall Quarter 1992, Winter Quarter, 1991-1992. Introduced design projects into Statics in 1990

Graduate: Wave Propagation in Continuous Media, Continuum Mechanics I & II, Theory of Elasticity, Advanced Mechanics of Materials

Educational Development and Research:

- Co-led the effort to start the distance learning Design Engineering Certificate program with General Motors in 2000. This certificate was designed initially for General Motors' employees but was later opened up to other suppliers and other companies. It is a twenty five (25) credit certificate which includes two courses from two other universities. Its focus is to add a math modeling ability to traditional designers. At its peak, there were over six hundred (600) General Motors employees enrolled in the certificate program.
- Led the effort to start a distance learning Ph.D. degree in Mechanical Engineering – Engineering Mechanics, Michigan Tech, in 1995 with initial partner Ford Motor Company. Today this degree program has been and continues to be utilized by employees from other companies, government labs or agencies, NGO's, and other research organizations.
- Part of a team (Bruce Barna, Alex Mayer, Bruce Rafert, and William Predebon) that initiated a distance learning Ph.D. degree with the University of Sonora, Hermosillo, Mexico, in 2003.
- Co-initiated, with Bruce Rafert, a distance learning BSE with a Product Design minor with Northwestern Michigan College, Traverse City, MI, in 2003. Initiated discussions with Delphi Community College and Henry ford Community College in the fall 2004 concerning a possible BSE program.
- Led the effort to start a distance learning Global Master of Science research degree in Mechanical Engineering at Michigan Tech in 1998, partnering initially with Bradford University in England and Ford Motor Company in Europe and the U. S. This took a year of planning involving compromises between the European and U.S. Research master's degree. A coursework only distance learning master of science degree, called "Signature", was also started in 2003 with Ford Motor Company. Today both degree programs have been and continue to be utilized by employees from other companies, government labs or agencies, NGO's, and other research organizations.
- Co-developer with Peck Cho of the Undergraduate Student Coaches Training program for the ME-EM Engineering Learning Center during the academic year, 1997, 1996 and 1995.
- Co-developer with Peck Cho of ME-EM Teaching Assistant (TA) Training Program during Fall Quarters, 1996 and 1995.
- Co-developer with Peck Cho, Marilyn M. Cooper, Pushpalatha P. Murthy of the MTU New Faculty Orientation and Yearly Seminar Series with Emphasis on Teaching, 1996; with Peck Cho, Diana George, Linda Ott and Philip Sweany, 1995.
- Organizer and Coordinator of the ME-EM Engineering Learning Center (ELC), 1990-1997. The

Center provides walk-in and by-appointment help for students in Statics, Dynamics, Mechanics of Materials and Thermodynamics with problem-solving skills, understanding concepts and lecture material, and with difficulties in homework problems and exams. These courses are the first real engineering classes and are gateway courses to the later junior- and senior-level courses in engineering design and analysis. It is staffed with carefully selected undergraduate students and graduate students. The ELC continues today as a viable learning center for our students and is the heart of the ME-EM Student Success Center.

- Coordinator/Advisor of Self-Paced Programmed Courses, Statics, Dynamics, and Mechanics of Materials, 1977-1990. Responsible for the development of the new Michigan Technological University Learning Resource Center for Self-Paced Programmed Instruction, 1981. Chairman, three year trial study of Self-Paced Programmed Instruction (SPPI) at MTU which resulted in an acceptable method of handling the SPPI versions of Statics, Dynamics, and Mechanics of Materials through the Learning Resource Center, 1977-1979.

Professional and Honorary Societies

- American Academy of Mechanics
- American Ceramic Society
- American Physical Society
- American Society for Engineering Education
- American Society of Mechanical Engineers
- Omicron Delta Kappa National Leadership Honor Society
- Phi Kappa Phi Honor Society
- Sigma Xi Research Society
- Society of Automotive Engineers
- Tau Beta Pi National Engineering Honor Society: Eminent Engineer
- Theta Tau National Engineering Fraternity – Honorary Member

Referred Archival Journal Publications:

- J.M. Staehler, W.W. Predebon, B.J. Pletka, G. Subhash, "Micro mechanisms of Deformation in High-Purity Hot-Pressed Alumina", *Materials Science & Engineering A291*, 37-45, 2000.
- J. Lankford, W.W. Predebon, J.M. Staehler, G. Subhash, B.J. Pletka, and C.E. Anderson, "The Role of Plasticity as a Limiting Factor in the Compressive Failure of High Strength Ceramics", *Mechanics of Materials Journal* 29, No.3 and 4, 205-218, 1998.
- J.M. Staehler, W.W. Predebon, B.J. Pletka and G. Subhash, "Strain-Rate Effects in High Purity Alumina," *JOM*, 47, No.5, 60-63, 1995.
- B.R. Murphy, W.W. Predebon and B.J. Pletka, "The Fracture Toughness of a High-Strength Alumina: Compact Tension versus Indentation Fracture Toughness", *Jour. Materials Science Letters*. 13, 1346-1348, 1994.
- A.V. Shah, W.W. Predebon and B.J. Pletka, "Deformation And Fracture In Directionally Solidified Co-CoAl Eutectic", *Jour. Materials Science*, 28, 5843-5851, 1993.
- J.M. Staehler, W.W. Predebon, B.J. Pletka and J. Lankford, "Testing of High-Strength Ceramics With the Split Hopkinson Pressure Bar", *J. Amer. Ceram. Soc.*, 76[2] 536-538, 1993.
- W.W. Predebon, C.E. Anderson Jr., and J.D. Walker, "Inclusion of Evolutionary Damage Measures in Eulerian Wavecodes", *Compo Mech. J.*, 7, No.4, 221-236 (1991).

- T.W. Webb, W.W. Predebon, and E.C. Aifantis, "Dislocation Dynamics and Lamellar Termination Softening in Co-CoAl Eutectics", *Scripta Metal.* 22, 1655-1660 (1988).
- P.E. O'Donoghue, W.W. Predebon, and C.E. Anderson Jr., "Dynamic Launch Process of Performed Fragments", *J. Appl. Phys.* 63(2), 337-348 (1988).
- J.C. Gerdeen, W.W. Predebon, P.M. Schwab and AV. Shah, "Elastic-Plastic Analysis of Directionally Solidified Lamellar Eutectic Composites", *J. Eng. Matl's. and Tech.*, 109, No.1, 53-58 (1987).
- W.M. Lee, W.W. Predebon and MJ. Jurosek, "Impact Response of Polymeric Materials at Varying Depths of Penetration", *Instrumented Impact Testing of Plastic and Composite Materials*, ASTM STP 936, S.L. Kessler, G.C. Adams, S.B. Driscoll, and D.R. Ireland, Eds., American Society For Testing and Materials, Philadelphia, P A, 1987, 302-323.
- C.A. Anderson Jr., W.W. Predebon and R.R. Karpp, "Computational Modeling of Explosive-Filled Cylinders", *Int. J. Engng. Sci.*, 23, No. 12, 1317-1330 (1985).
- T.A Wall, W.W. Predebon and BJ. Pletka, "The Dependence of Yield Stress on Lamellar Termination Density of Co-CoAl Eutectic Alloys", *Acta Met. J.* Vol. 33, No.2, 287-294 (1985).
- G.H. Brawley and W.W. Predebon, "An Investigation of Shock-Induced Fracture in a Lamellar Eutectic Two-Phase Metal Alloy", *Engineering Fracture Mechanics Journal*, 16, No.5, 613-624 (1982).
- J.M. Kramer, C.E. Meek and W.W. Predebon, "A Generalized Analysis of Thermal and Mechanical Loads in Inertial Confinement Reactors", *J. Thermal Stresses*, 3, 537-549 (1980).
- W.W. Predebon and G.A Nariboli, "Shock Waves in a Hyperelastic Medium", *Zeitschrift fur angewandte Mathematik und Mechanik (ZAMM)*, 52, 133-136 (1972).
- W.W. Predebon, T.R. Rogge and D.F. Young, "Unsteady Flow in a Tube with Prescribed Discharge", *J. Appl. Mech., Ser. E.*, 36, 635-637 (1969).

Publications in Proceedings and Books:

- B.P. Bettig, J.E. Hertel, M.A. LaCourt, J.E. Beard, B-D Youn, C.R. Vilmann, M.A. Bable, M.C. Peed and W.W. Predebon, *NX CAD/CAM/CAE through-out the curriculum at Michigan Technological University, 2006 PACE Annual Forum*, Brigham Young University, Provo, Utah, July 24-29, 2006
- W.R. Shapton, P.F. Zenner, W.W. Predebon, J.W. Sutherland, M.A. Banks-Sikarskie, L.A. Artman and P.A. Lins, "From the Classroom to the Boardroom: Distance Learning Undergraduate and Graduate Engineering Programs, A Global Partnership of Industry and Academia", **International Conference on Engineering Education Proceedings** (CD Format), Oslo, Norway, August 6-10, 2001, 1-6 pp.
- C.L. White, W.W. Predebon, E. Wathne, and P.K. Larsen, "An International Industry/University Collaboration: Norsk Hydro Michigan Tech/NTNU", **International Conference on Engineering Education Proceedings** (CD Format), Oslo, Norway, august 6-10, 2001, 4 pp.
- P. Cho and W.W. Predebon, "Engineering Learning Center Coach Training Program For Minority Students, **Proceedings of the 1997 American Society for Engineering Education Annual Conference**, Milwaukee, WI, American Society for Engineering Education, Washington, D.C., CD-ROM, Session 2670, 6 pp., 1997
- "Technical Insights' Easy Fabrication of High-Tech Materials: A New Era of Widespread Commercialization", **John Wiley and Sons Publishers**, Fall 1996, pp 37-38.
- W.W. Predebon, P. Cho, D. George, L.M. Ott and P. Sweany, "New Faculty Orientation and Seminar Series: Emphasis on Teaching and Learning," **Proceedings of the 1996 American Society for Engineering Education Annual Conference**, Washington, D.C., American Society

for Engineering Education, Washington, D.C., CD-ROM, Session 1275, 8 pp., 1996.

- P. Cho and W.W. Predebon, "A Teaching Assistant Training Program with a Focus on Teaching Improvement and Graduate Student Development," **Proceedings of the 1996 American Society for Engineering Education Annual Conference**, Washington, D.C., American Society for Engineering Education, Washington, D.C., CD-ROM. Session 2644, 7 pp., 1996.
- W.W. Predebon, J.M. Staehler and BJ. Pletka, "The Mechanical Behavior and Impact Response of a Newly Developed Fine-Grained Alumina Ceramic as a Function of Strain Rate", **Proceedings of the International Conference on Composites Engineering**, ICCE/1, D. Hui, Ed., August 1994, 407-410.
- J.M. Staehler, W.W. Predebon and BJ. Pletka, "The Response of High Purity Alumina to Plate-Impact Testing", **High Pressure Science and Technology, -1993, Part 1**, S.C. Schmidt, J.W. Shaner, G.A. Samara, and M. Ross, Eds., American Institute of Physics, AIP Conference Proceedings 309, New York, 1994, 745-748.
- J.M. Staehler, W.W. Predebon and BJ. Pletka, "Mechanical Behavior of a High-Purity Alumina Over the Strain Rate Range 10^{-4} - 10^6 sec⁻¹", Proceedings of the **13th Army Symposium of Solid Mechanics**, S-C. Chou, F.D. Bartlett Jr., and K. Iyer, Eds., U.S. Army Materials Technology Laboratory, Watertown, MA, 1993, 493-504.
- J.M. Staehler, W.W. Predebon and BJ. Pletka, "A High Purity Alumina with Exceptional Compressive and Flexure Strength Behavior or Alumina Revisited- But Much Better Than Ever", Proceedings of the **12th Army Symposium on Solid Mechanics**, S-C. Chou, Ed., U.S. Army Materials Technology Laboratory, Watertown, MA, 1992, 221-235.
- W.W. Predebon, C.E. Anderson Jr. and J.D. Walker, "Inclusion of Equivalent Plastic Strain in Eulerian Wavecodes". **Shock Compression of Condensed Matter -1989**, S.C. Schmidt, J.N. Johnson and L.W. Davison, Eds., North Holland Elsevier Science Publishers B.V., Amsterdam, Netherlands, 1990, 185-188.
- W.W. Predebon, C.E. Anderson Jr., J.D. Walker, P.E. O'Donoghue, and P.K. Bowles. "Evolutionary Damage Measures in Eulerian Hydrocodes": in **Developments in Mechanics. Proceedings: Twenty-First Midwestern Mechanics Conference**. Ligon, J.B., Lord, H.W., Vable, M., Snyder V.W., and Trevino, G., Eds., Vol. 15, Houghton, MI, 1989, 147-148.
- P.E. O'Donoghue, C.E. Anderson Jr., and W.W. Predebon, "Shock Propagation and its Influence on Tensile Spall in Explosive Launching of Performed Fragments", **Impact Loading and Dynamic Behavior of Materials**, C.Y. Chiem, H.-D. Kunze and L.W. Meyer, Eds., Vol. 2, DGM Informationsgesellschaft, Adenauerallee 21 D-6370 Oberursel 1, Germany, 1988, 1041-1050.
- W.W. Predebon, P.E. O'Donoghue and C.E. Anderson Jr., "Gap Closure and Opening Between Performed Fragments During Explosive Launch", **Shock Waves in Condensed Matter-1987**, S. C. Schmidt and N.C. Holmes, Eds., Elsevier Science Publishers B.V., Amsterdam, Netherlands, 1988, 729-732.
- C.A. Truesdell III, "Origin of the Theory of Vibrating Systems", **Res Mechanica**, 21, 291-311 (1987), Prepared from Truesdell's notes by W.W. Predebon
- J.M. Dalrymple, W.W. Predebon and C.E. Work, **Study Guide for Mechanics of Materials**. Used for Self-Paced Programmed version of Mechanics of Materials course, Michigan Technological University, Houghton, MI, originally published November 1983, Latest revision August 1987, 148 pgs.
- T.A. Wall, W.W. Predebon and BJ. Pletka, "The Interaction Between Yield Stress and Lamellar Termination Density in Cobalt-Aluminum Eutectic Composite", **1983 Advances in Aerospace Structures, Materials and Dynamics, A Symposium on Composites, Ad06**, U. Yuceoglu, R.L. Sierakowski and D.A. Glasgow, Eds., American Society of Mechanical Engineers, New York, NY, 1983, 209-214.

- W.W. Predebon and W.E. Thompson, "Incipient Fracture in Shock-Loaded Lamellar Metal-Alloy Composites With and Without Microstructural Defects", **1982 Advances in Aerospace Structures and Materials, Ad-03**, R.M. Laurenson and U. Yuceoglu, Eds., American Society of Mechanical Engineers, New York, NY, 1982, 61-64.
- W.W. Predebon and S.J. Loosemore, "A Comparison Between Self-Paced Programmed Instruction and Conventional Instruction", **Frontiers in Education Eleventh Annual Conference-1981 Proceedings**, L.P. Grayson and J.M. Biedenbach, Eds., Institute of Electrical and Electronics Engineers, New York, NY, 1981, 363-381.
- W.E. Thompson and W. W. Predebon, "An Investigation of Incipient Fracture in Shock Loaded Lamellar Cobalt-Aluminum Eutectic", **Shock Waves in Condensed Matter 1981**, AIP Conference Proceedings No. 78, WJ. Nellis, L. Seaman, R.A. Graham, Eds., American Institute of Physics, New York, 1982, 451-455.
- W.W. Predebon, J.M. Dalrymple, H.W. Lord and C.E. Work, "An Instructional Center for Self-Paced Programmed Courses: An Alternate for Reluctant Faculty", **Frontiers in Education Ninth Annual Conference-1979 Proceedings**, L.P. Grayson and J.M. Biedenbach, Eds., Institute of Electrical and Electronic Engineers, New York, NY, 1979, 150-170.
- R.R. Karpp and W.W. Predebon, "Calculation of Fragment Velocities from Fragmentation Munitions", Proceedings **First International Symposium on Ballistics**, E.J. Bryant, Ed., American Defense Preparedness Association, Washington, D.C. 1974, IV: 145-176.

Reports:

- C.E. Anderson Jr., P.E. O'Donoghue and W.W. Predebon, "An Examination of the Explosive Launch of Cubical Tungsten Fragments" **SWRI Report No. 8763/01**, Southwest Research Institute, San Antonio, TX, May 1987, Unclassified
- W.W. Predebon and J.H. Kineke, Jr., "Missile Warhead Modeling and Experiments: Effects of Internal Inert Volumes", BRL Contract Report, **BRL-CR-532, U.S. Army Ballistics Research Laboratories**, Aberdeen Proving Ground, MD, December 1984, AD B088925, Unclassified.
- W.W. Predebon, W.G. Smothers and C.E. Anderson, "Missile Warhead Modeling: Computations and Experiments", **BRL Memorandum Report No. 2796, U.S. Army Ballistics Research Laboratories**, Aberdeen Proving Ground, MD, October 1977, AD A047294, Unclassified.
- W.W. Predebon, "Conclusions and Recommendations Concerning an Analysis of the Response of Fuel Pins to Very Rapid Heating in Accident Transients", **Reactor Analysis and Division Report, Argonne National Lab.**, Argonne, IL, Aug. 1976.
- R.R. Karpp and W.W. Predebon, "Calculations of Fragment Velocities from Naturally Fragmenting Munitions", **BRL Memorandum**, Report No. 2509, U.S. Army Ballistics Research Labs., Aberdeen Proving Ground, MD, July 1975, AD B007377L, Unclassified.
- W.W. Predebon, "Fragment Velocity and Mass Distribution Predictions and Comparisons with Experimental Data for SAM-D, XM-248 Warhead", **BRL Memorandum Report No. 2499, U.S. Army Ballistic Research Labs.**, Aberdeen Proving Ground, MD, July 1975, Unclassified.

Invited Papers and Talks:

- W.W. Predebon , "Industry Sponsored Enterprise and Senior Design Programs at Michigan Technological University", **International Symposium on "The Enhancement of Service and Quality in Education"**, Seoul National University of Technology, Seoul, Korea, October 17, 2006
- W.D. Blumhardt, W.W. Predebon and J. Hausman, "Fostering Interdisciplinary Research through Planning and Design: Lessons Learned," **Society for College and University Planning**

Conference, SCUP 33, Vancouver, British Columbia, Canada, July 18-22, 1998.

- W.W. Predebon, "MTU Alumina Processing, Properties, and Responses", **American Ceramic Society, Michigan/Ohio Section**, Detroit, MI, February 26, 1997.
- W.W. Predebon, "MTU Alumina Processing and Dynamic Behavior", **12th Ceramics Modeling Working Group Meeting**, Institute for Advanced Technology, University of Texas at Austin, Austin, TX, March 14-15, 1995.
- W.W. Predebon, "The Mechanical Behavior and Impact Response of a Newly Developed Fine-Grained Alumina Ceramic as a Function of Strain Rate", **The University of Maryland, Baltimore County**, Baltimore, MD, November 18, 1994.
- W.W. Predebon, J.M. Staehler, B.J. Pletka, "The Mechanical Behavior and Impact Response of a Newly Developed Fine-Grained Alumina Ceramic as a Function of Strain Rate", **International Conference on Composites Engineering, ICCE/1**, New Orleans, LA, August 28-31, 1994.
- W.W. Predebon, J.M. Staehler, and B.J. Pletka, "Mechanical Behavior of Fine-Grained, High Purity Alumina Over the Strain Rate Range 10^{-4} - 10^6 sec⁻¹", **Fourth International Symposium on Plasticity and Its Applications**, Baltimore, MD, July 19-23, 1993.
- W.W. Predebon, "Part 1: Integration of a tutoring Center into the Teaching of Dynamics; Part 2: Integration of a Tutoring Center and Design Project into the Teaching of Statics", Invited talk at the **1993 Upper Peninsula Faculty Forum**, Michigan Technological University, Houghton, MI, April 15-16, 1993.
- W.W. Predebon, "Mechanical Properties of Fine Grained and High Purity Alumina", **9th Ceramics Modeling Working Group Meeting**, Institute for Advanced Technology, Austin, TX, November 4-5, 1992.
- W.W. Predebon, "Integration of Writing Assignments into Fluid Mechanics", Invited talk at **Upper Peninsula University and College Consortium Conference on Writing Across the Disciplines, Ford Forestry Conference Center**, Alberta, MI, September, 25-26, 1987.
- W.W. Predebon, "Computer Simulation of the Impact Response of Polyethylene and Polystyrene", "Invited Talk at **Dow Chemical U.S.A.**", Midland, MI, February 23, 1984.
- W.W. Predebon and W.E. Thompson, "Incipient Fracture in Shock-Loaded Lamellar Metal Alloy Composites With and Without Microstructural Defects", **ASME Winter Annual Meeting**, Phoenix, AZ, Nov. 14-19, 1982.
- W.W. Predebon and W.E. Thompson, "The Effect of Interlamellar Spacing on Incipient Fracture in Shock-Loaded Lamellar Metal-Alloy Composites", **19th Annual Meeting, Society of Engineering Science**, Univ. of Missouri-Rolla, Rolla, MO, October 27-29, 1982.
- W.W. Predebon, "Self-Paced Programmed Instruction: The Method, The Means, and Effectiveness", Invited talk sponsored by the **Michigan Technological University Faculty Development Committee**, Houghton, MI, April 24, 1980.

Posters Presented (Presenter(s) Boldfaced):

- **K.H. Doeringsfeld** and W.W. Predebon, "One Dimensional Model of the Mechanics of Explosively Formed Penetrators for use in Design", **11th International Symposium on Ballistics**, Brussels, Belgium, May 9-11, 1989.

Papers Presented (Presenter(s) Boldfaced):

- **W.W. Predebon**, Mechanical Response of Hot-pressed High Purity Alumina, International

Conference on Computational and Experimental Engineering and Sciences (ICCES 2005) IIT, Chennai, India, December 1-6, 2005

- **W.W. Predebon**, "Strain Rate Effects and Micromechanisms in High Purity Hot Pressed Alumina," Norwegian University of Science and Technology, Trondheim, Norway, March 29, 1999.
- **W.W. Predebon** and A.J. Day, "Globalization of Joint M.S. and Ph.D. Degrees Between University of Bradford and Michigan Technological University," **1997 American Society for Engineering Education Annual Conference**, Milwaukee, WI, June 15-18, 1997.
- **P. Cho** and W.W. Predebon, "The Development of Minority Student Coaches for Engineering Learning Center at Michigan Technological University", **Conference on Equity As We Approach the 21st Century**, Western Michigan University, Kalamazoo, MI, March 13-14, 1997.
- **W.W. Predebon**, P. Cho, D. George, L.M. Ott and P. Sweany, "New Faculty Orientation and Seminar Series: Emphasis on Teaching and Learning," **1996 American Society for Engineering Education Annual Conference**, Washington, D.C., June 23-26, 1996.
- **P. Cho** and W.W. Predebon, "A Teaching Assistant Training Program with a Focus on Teaching Improvement and Graduate Student Development," **1996 American Society for Engineering Education Annual Conference**, Washington, D.C., June 23-26, 1996.
- **W.W. Predebon**, D.J. Nagle and E. Lumsdaine, "A Ph.D. Program Designed to Meet the Needs of Industrial Professionals in the 21st Century," **1995 American Society for Engineering Education Annual Meeting**, Anaheim, CA, June 25-28, 1995.
- **J.M. Staehler**, W.W. Predebon and B.J. Pletka, "Mechanical Behavior of a High-Purity Alumina Over the Strain Rate Range 10^{-4} - 10^6 sec⁻¹", **1993 Army Symposium on Solid Mechanics**, Plymouth, MA, August 17-19, 1993.
- **J.M. Staehler**, W.W. Predebon and B.J. Pletka, "The Response of High Purity Alumina to Plate-Impact Testing", **1993 Joint AIRAPT/APS Topical Conference on High Pressure Science and Technology**, Colorado Springs, CO, June 28-July 2, 1993.
- **J.M. Staehler**, W.W. Predebon and B.J. Pletka, "High Purity Alumina With Exceptional Mechanical Properties", **95th Annual Meeting of the American Ceramic Society**, Cincinnati, OH, April 18-22, 1993.
- **J.M. Staehler**, W.W. Predebon and B.J. Pletka, "A High Purity Alumina with Exceptional Compressive and Flexure Strength Behavior or Alumina Revisited - But Much Better Than Ever", **1991 U.S. Army Symposium on Solid Mechanics**, Plymouth, MA, November 4-7, 1991.
- **W.W. Predebon**, C.E. Anderson Jr., J.D. Walker, I.M. Staehler, and H. Li, "Evolutionary Damage Measures in Eulerian Wavecodes - Gradient Effects", **International Conference on Mechanics, Physics and Structure of Materials, A Celebration of Aristotle's 23 Centuries**, Aristotle University of Thessaloniki, Thessaloniki, Greece, August 19-24, 1990.

- **K.H. Doeringsfeld**, W.W. Predebon, R.R. Karpp, I. Speck, and F. Wagener, "One Dimensional Model of the Formation of an EFP", **40th Annual Bomb and Warhead Section**, American Defense Preparedness Association, Eglin Air Force Base, Fort Walton Beach, FL, May 16-18, 1990.
- **W.W. Predebon**, C.E. Anderson Jr., J.D. Walker, P.E. O'Donoghue, and P.K. Bowles, "Inclusion of Evolutionary Damage Measures in Eulerian Hydrocodes", **Second International POST - SMIRT Seminar on Impact**, Anaheim, CA, August 21-22, 1989.
- **W.W. Predebon**, C.E. Anderson Jr., J.D. Walker, and P.E. O'Donoghue, "Inclusion of Equivalent Plastic Strain in Eulerian Wavecodes", **1989 American Physical Society Topical**

Conference on Shock Compression of Condensed Matter, Albuquerque, NM, August 14-17, 1989.

- **W.W. Predebon**, C.E. Anderson Jr., J.D. Walker, P.E. O'Donoghue, and P.K. Bowles, "Evolutionary Damage Measures in Eulerian Hydrocodes", **21st Midwestern Mechanics Conference**, Michigan Technological University, Houghton, MI, August 13-16, 1989.
- **W.W. Predebon**, P.E. O'Donoghue and C.B. Anderson Jr., "Gap Closure and Opening Between Performed Fragments During Explosive Launch", **1987 American Physical Society Topical Conference on Shock Waves in Condensed Matter**, Monterey, CA, July 20-23, 1987.
- P.E. O'Donoghue, **C.E. Anderson Jr.**, and **W.W. Predebon**, "Shock Propagation and its Influence on Tensile Spall in Explosive Launching of Performed Fragments", **IMPACT '87, International Conference on Impact Loading and Dynamic Behavior of Materials**, Bremen, Federal Republic of Germany, May 18-22, 1987.
- **W.W. Predebon** and J.H. Kineke Jr., "Calculations and Experimental Comparisons of Fragment Velocity Distribution for Missile Warheads With Internal Inert Volumes", **1986 Army Symposium on Solid Mechanics**, U.S. Military Academy, West Point, NY, October 7-9, 1986.
- **J.C. Gerdeen**, **W.W. Predebon**, P.M. Schwab and A.V. Shah, "A Finite-Element Computer-Algorithm for Elastic-Plastic Behavior of FCC Lamellar Crystals", Proc. 1985 Mechanical Behavior of Composite Materials, Materials Div., Paper No. 85-W AI MATS-10, **1985 ASME Winter Annual Meeting**, Nov. 17-21, 1985, Miami Beach, FL.
- **W.M. Lee**, Dow Chemical, **W.W. Predebon**, and M.J. Jurosek, Honeywell, Inc., "Impact Response of a Polymeric Material of Varying Depths of Penetration", **ASTM Symposium on Instrumented Impact Testing of Plastics and Composite Materials**, Houston, TX, March 11-12, 1985.
- **P. Bellamy**, Washington State Univ., and **W.W. Predebon**, "Dynamic Fracture Experiments with Cobalt-Aluminum System", **1984 Spring Meeting of the American Physical Society**, Washington, D.C., April 23-26, 1984.
- T.A. Wall, **W.W. Predebon** and B.J. Pletka, "The Interaction Between Yield Stress and Lamellar Termination Density in Cobalt-Aluminum Eutectic Composite", Proc. 1983 Advances in Aerospace Structures, Materials and Dynamics, **1983 ASME Winter Annual Meeting**, Boston, MA, Nov. 13-18, 1983.
- T.A. Wall, **W.W. Predebon** and **B.J. Pletka**, "The Dependence of Yield Stress on Lamellar Termination Density in Co-CoAl Eutectic Alloys", **1983 TMS-AIME Fall Meeting**, Philadelphia, PA, Oct. 2-6, 1983.
- **W.W. Predebon**, "Self-Paced Instruction in Engineering Mechanics", **Workshop on Increasing Productivity in Teaching**, Michigan Tech. Univ., Houghton, MI, April 14, 1983.

- **W.W. Predebon** and W.E. Thompson, "Incipient Fracture in Shock-Loaded Lamellar Metal-Alloy Composites With and Without Microstructural Defects", Proceedings, **1982 Advances in Aerospace Structures and Materials**, 1982 ASME Winter Annual Meeting, Phoenix, AZ, Nov. 14-19, 1982.
- **W.W. Predebon** and W.E. Thompson, "The Effect of Interlamellar Spacing on Incipient Fracture in Shock-Loaded Lamellar Metal-Alloy Composites", **19th Annual Meeting Society of Engineering Science**, Univ. of Missouri-Rolla, Rolla, MO, Oct. 27-29, 1982.
- **W.W. Predebon** and S.J. Loosemore, "A Comparison Between Self-Paced Instruction and Conventional Instruction", **Michigan Teachers of Mechanics**, Ferris State College, Big Rapids, MI, Nov. 6, 1981.
- **W.W. Predebon** and S.J. Loosemore, "A Comparison Between Self-Paced Programmed Instruction and Conventional Instruction", **1981 Frontiers in Education Conference**, Rapid City,

SD, October 19-21,1981.

- **W.W. Predebon** and W.M. Lee, "Computer Simulation of the Impact Response of Polystyrene and Polyethylene", **Polymer Science and Technology Symposium**, Michigan Tech. Univ., Houghton, MI, Sept. 28-29, 1981.
- **W.E. Thompson** and W.W. Predebon, "An Investigation of Incipient Fracture in Shock Loaded Lamellar Cobalt-Aluminum Eutectic with Microstructural imperfections", **1981 Topical Conference on Shock Waves in Condensed Matter, American Physical Society**, Stanford Research Institute, Menlo Park, CA, June 23-25, 1981.
- **W.W. Predebon**, J.M. Dalrymple, H.W. Lord and C.E. Work, "An Instructional Center for Self-Paced Programmed Courses - An Alternate for Reluctant Faculty", **Michigan Teachers of Mechanics**, Calvin College, Grand Rapids, MI, November 14, 1980.
- **G.H. Brawley** and W.W. Predebon, "A Fracture Investigation of a Lamellar Eutectic Two-Phase Metal Alloy Under Shock-Loading", **1980 U.S. Army Symposium on Solid Mechanics**, Cape Cod, MA, Sept. 30-Oct. 2, 1980.
- **W.W. Predebon**, J.M. Dalrymple, H.W. Lord and C.E. Work, "An Instructional Center for Self-Paced Programmed Courses: An Alternate for Reluctant Faculty", **1979 Frontiers in Education Conference**, Niagara Falls, Canada, Oct. 15-17, 1979.
- **G.H. Brawley** and W.W. Predebon, "A Fracture Investigation of Shock-Loaded Lamellar Cobalt-Aluminum Eutectic", **1979 Topical Conference on Shock Waves in Condensed Matter**, American Physical Society, Pullman, W A, June 11-13, 1979.
- **W.W. Predebon**, J.M. Dalrymple, H.W. Lord and C.E. Work, "An Instructional Center for Self-Paced Programmed Courses - An Alternate for Reluctant Faculty", **86th Annual ASEE Conference**, Univ. of British Columbia, Vancouver, B.C., June 19-22, 1978.
- R.R. Karpp and **W.W. Predebon**, "Calculation of Fragment Velocities from Fragmentation Munitions", **First International Symposium on Ballistics**, Orlando, FL, November 13-15, 1974.

Other Talks

- W.W. Predebon, "3M/MTU Collaborative Research Opportunities". Invited presentation to 3M senior management, Minneapolis, MN, April 25, 2001
- W.W. Predebon, "Promotion and Tenure - A Department Chair's Perspective", "MTU College of Engineering/ASEE Sponsored Luncheon Seminar, Houghton, MI, October 12, 2000.
- W.W. Predebon, "ABET Accreditation Visit-Experience and Assessment Results". Invited presentation at the ASME meeting of Mechanical Engineering Department Heads on "Drivers and Strategies of Major Program Change", Fort Lauderdale, FL, March 26 - 29, 2000.
- W.W. Predebon and C.L. Anderson, "EC 2000 Preparedness Workshop: Experiences and Lessons Learned from the EC 2000 Visit", presented at the 1999 International Mechanical Engineering Congress & Exposition ME '99, American Society of Mechanical Engineers, Nashville, TN, November 14, 1999.
- W.W. Predebon, "Panel on Assessment Tools - Case Studies and Measures for Assessment" Session MEDHC-I, presentation at the 1999 International Mechanical Engineering Congress & Exposition ME '99, ASME, Nashville, TN, November 14, 1999.
- W.W. Predebon "ME-EM 2000: The Mechanical Engineering Curriculum at Michigan Technological University", International Union of Materials Research Societies IUMRS-ICAM '99, Materials Education Forum, Beijing, China, June 17, 1999
- W.W. Predebon, "Education and Research in the Department of Mechanical Engineering-Engineering Mechanics", University of Science and Technology, Beijing (USTB), China, June 15, 1999.

Invited Short Courses:

- Two three-hour lectures given on topics listed under 3 below to Precision Weapons Group, **Defense Systems Division, Honeywell Inc.**, Minnetonka, MN, August 22 & 24, 1988.
- Short course on review of engineering fundamentals and applications given to **Aeromechanical Technology Section, Honeywell, Inc.**, Edina, MN, during June November 1985. Six one hour lectures were given in the following areas:
 - Equations of State & Constitutive Equations under Dynamic Loading (2 hrs), Statics, Strength of Material Dynamics, Fluid Mechanics
- Short course given to Explosion Dynamics Technology Group, Honeywell, Inc, Edina, MN, during April-June 1984. Seven two-hour lectures were given in the following areas:
 - One Dimensional modeling and Computation, Waves of Uniaxial Strain, Equation of State and Fragmentation, Fragmentation Effects II, Penetration by Jets, Computational Modeling of Waves

Reviews:

- Guest Editor, Special Issue of Mechanics of Materials Journal, "A Symposium on: Advances in Failure Mechanisms in Brittle Materials", 1997.
- Scanning Microscopy International Journal, 1995 - present.
- International Journal of Analytical and Experimental Modal Analysis, 1989, 1995
- Invited Participant: Addison-Wesley Publishing Company Engineering Forum, University of Michigan, Ann Arbor, MI, March 18, 1995
- Invited Panelist: Saunders College Publishing Focus Group on Dynamics, Edmonton, Ontario, Canada, June 18, 1994
- Invited Panelist: Prentice Hall's Statics and Dynamics Focus Group, May 5, 1992. Forum of U.S. educators discussing the manner in which they teach Statics and Dynamics.
- NSF Panel Review of Proposals in Undergraduate Curriculum Development in Mathematics: Calculus Program, 1990.
- Metallurgical Transactions, 1985.
- NSF proposals in Shock Deformation, Dynamic Fracture, and Microstructural Effects, 1984.

Book Reviews:

- Engineering Mechanics Dynamics, Riley and Sturgis, 2nd Ed., John Wiley and Sons Publishers, 1995.
- Engineering Mechanics: Dynamics, Study Guide by Riley and Sturges, John Wiley & Sons Publishers, 1993.
- Dynamics by Andrew Pytel and Jaan Kiusalaas, Harper Collins Publishers, 1992.
- Engineering Mechanics-Dynamics by Das, Kassimali and Sami, R.D. Irwin, Publishers, 1991.
- Engineering Mechanics - Statics by Das, Kassimali, and Sami, R.D. Irwin Publishers, First Draft 1990, Second Draft 1991.
- Hypervelocity Impact, Proceedings of the 1986 Symposium, Charles E. Anderson Jr., Ed. 759 pp. Pergamon Press, 1987. Review appeared in July 1989 issue of American Scientist.
- Impact Dynamics, J.A. Zukas, et al., John Wiley & Sons Publisher, Society of Experimental Mechanics, 1987.

- Engineering Mechanics, Dynamics, R.C. Hibbler, 4th Edition, MacMillan Publishing, 1985.

Consulting:

- Southwest Research Institute, San Antonio, TX, 1985-present.
- Shock Transients Inc., Hopkins, MN, 1991-2000.
- Alliant Techsystems Inc. (formally Honeywell Inc.), Hopkins, MN 1990 - 2000.
- Honeywell Inc., Defense Systems Division, Brooklyn Park and Minnetonka, MN 1984-1990, Hopkins and Edina, MN 1978-1981.
- Argonne National Laboratory, Argonne, IL 1978-1981.

Graduate Students Advised:

Theses Supervised:

- S.K. Venugopalan, "Characterization of MTU-JS 1 Alumina under Multiaxial Confinement and at Elevated Temperature," M.S. in Mechanical Engineering, Co-Advisor, 1998
- S.D. Follett, "Experimental Results for 2.5% Tungsten-Tantalum Subjected to High Strain Rate Tensile Loading of Various Temperatures", M.S. in Engineering Mechanics.
- J.M. Staehler, "Mechanical Behavior and Processing of Ceramics", Ph.D. in Mechanical Engineering-Engineering Mechanics, 1995
- I. Damtsa, "One-Dimensional Shear Instability and Localization of a gradient-Dependent, Thermoviscoplastic Solid," M.S. in Mechanical Engineering, 1995.
- B.R. Murphy, "Fracture Toughness of a High Strength Ultra-Pure Alumina", M.S. in Engineering Mechanics, 1992.
- B.C. Schell, "Characterization of Alloyed Tantalum Through Split Hopkinson Pressure Bar and Computational Analysis", M.S. in Engineering Mechanics, 1991.
- Chris C. Cusack, M.S. in Mechanical Engineering, 1991.
- D.G. Strenski, "New Computational Approaches to Impact Phenomena", M.S. in Mechanical Engineering, 1990.
- H. Li, "A Continuum Damage Model for Brittle Materials and its Application to Wave Propagation", M.S. in Engineering Mechanics, 1989.
- J.M. Staehler, "An Experimental and Computational Analysis of the Effects of Terminations on the Deformation of the Co-CoAl Lamellar Eutectic", M.S. in Engineering Mechanics, 1987.
- T.W. Webb, "Single Slip and Macroscopic Plasticity: Application to Eutectics", M.S. in Engineering Mechanics, 1986.
- A.V. Shah, "Experimental and Computational Study of Microstructural Defects in the Cobalt-Aluminum Lamellar Eutectic System", M.S. in Engineering Mechanics, 1985.
- M.L. Jurosek, "An Investigation into the Impact Response of Polyethylene and Polystyrene Using a Wave Mechanics Computational Approach", M.S. in Engineering Mechanics, 1984.
- W.E. Thompson, "An Investigation of Incipient Fracture in Shock-Loaded Lamellar Cobalt-Aluminum Eutectic with Microstructural Defects", M.S. in Engineering Mechanics, 1982.
- T.A. Wall, "An Analysis of the Yield Behavior of the Cobalt-Aluminum Lamellar Eutectic System", M.S. in Engineering Mechanics, 1982.

- G.H. Brawley, "A Fracture Simulation of a Lamellar Eutectic Metal Under Shock Pulse Loading", M.S. in Engineering Mechanics, 1979.

Funded Grants and Contracts:

- **Michigan Tech Research Excellence Fund – Instruction Enhancement (REF-IE)**, “ME-EM Research Caucus Grant Writer”, William W. Predebon (PI), Carl L. Anderson, Jeffrey D. Naber, and Donna J. Michalek (Co-PIs), July 1, 1006 – August 30, 2007, \$34,158.
- **Clare Boothe Luce Foundation**, “Undergraduate Scholarships – Clare Booth Luce Scholars Program” (for women in engineering), Chris Anderson (PI), William W. Predebon (Co-PI), September 1, 2005 – August 30, 2007, \$176,604.
- **Michigan Tech Research Excellence Fund – Infrastructure Enhancement (REF-IE)**, “Biotechnology Research Center Technical Support to Enhance interdisciplinary Molecular Research”, William W. Predebon (PI), Chung Jui Tsai (Co-PI), August 1, 2005 – July 1, 2006, \$45,000.
- **Michigan Tech Research Excellence Fund – Infrastructure Enhancement (REF-IE)**, “Nationally Visible Infrastructure: the MTU machining Education and Research Laboratories (MERL)”, William W. Predebon (PI), Roshan D’Souza, William Endres, Craig Friedrich, Michele Miller, Donna Michalek, John Sutherland, and Michael LaCourt (Co-PI’s), Sept. 1, 2004 – May 31, 2005, \$34,700.
- **Michigan Tech Research Excellence Fund – Infrastructure Enhancement (REF-IE)**, “Nationally Visible Infrastructure: Industry – Directed planning of Centers, William W. Predebon (PI), \$15,000.
- **Ford Motor Company**, "Global Master of Mechanical Engineering Degree Program in the Department of Mechanical Engineering-Engineering Mechanics at Michigan Technological University," W.W. Predebon (PI), T.R. Grimm, D.A. Nelson, D.L. Sikarskie, J.W. Sutherland, K.J. Weinmann (CO-PI's), June 1, 1997 - August 31,1998, \$153,495.
- **Michigan Department of Education**, Office of Equity, Select Student Support Services Grant, C.S. Anderson (Program Director), \$183,664 (Total Budget) "Enhancing the Engineering Learning Center," W.W. Predebon (CO-PI) and P. Cho (CO-PI), \$84,563 (Project Budget), July 1, 1997-June 30,1998.
- **Ford University Research Programs**, "Distance Education Infrastructure for the Globalization of MSc. and Ph.D. Degrees at the University of Bradford in England and Michigan Technological University in U.S., W.W. Predebon (Co-PI), Andrew J. Day (Co-PI-Bradford Univ., England), January 1, 1997-December 31,1997, \$74,090.
- **Idaho National Engineering Laboratory, Lockheed Martin Idaho Technologies Company**, "Development of Non-Brittle Ceramics for High-Temperature-and High Strength Applications," B.J. Pletka (PI), G. Subhash (Co-PI) and W.W. Predebon (Co-PI), November 1, 1996, September 15,1997, \$34,720.
- **Michigan Department of Education, Office of Equity, Select Student Support Services Grant**, C.S. Anderson (Program Director), \$201,850 (Total Budget), "Enhancing the Learning Center", W.W. Predebon (Co-PI) and P. Cho (Co-PI) \$85,109 (Project Budget), July I, 1 996-June 30, 1997.
- **Michigan Research Excellence Fund Grant**, "Further Development of an Ultra-Pure, High-Strength Alumina for Cutting Tool Applications," G. Subhash (PI), W.W. Predebon (Co-PI) and B.J. Pletka (Co-PI), December I, 1995 - November 30, 1996, \$34,250.
- **Michigan Department of Education, Office of Equity, Select Student Support Services Grant**, C.S. Anderson (Program Director), \$166,682 (Total Budget), Enhancing the Engineering

Learning Center Project: W.W. Predebon (Co-PI) and P. Cho (Co-PI), \$81,084 (Project Budget), July 1, 1995 - June 30, 1996.

- **Michigan Research Excellence Fund Grant**, "Production of Novel Engineering Materials Through Rapid Isostatic Densification Processing", Principal Investigator: M.G. McKimpson, Co-Principal Investigators: W.W. Predebon, D. Mikkola, W. Milligan, M. Plichta, K. Rundman, December 1, 1992-November 30,1994, \$164,010.
- **Alliant Techsystems Inc.** Contract No. 645860-0A, "Alliant Techsystems/MTU Graduate Internship Program in Shock Dynamics and Material Response Under High Strain Rates", January 1, 1991 - April 30, 1993, \$80,064.
- **General Dynamics Contract No. WPC001497**, "Development of a Physically- Based Continuum Model for Ceramics Valid Under Impact Loading", May 1, 1991-December 3 I, 1992, \$63,703.
- **Alliant Techsystems Inc.** (formally Honeywell) Contract No. 645877-0A, "Material Characterization Under Impulsive Loading", January 1, 1991 - December 31, 1991, \$15,000.
- **Michigan Technological University College of Engineering Grant**, "High Strain Rate Experiments on a New High Purity Alumina Developed at MTU", October 15, 1990 - September 30, 1991, \$10,000.
- **Honeywell Inc. Contract No. 637947-05**, "Material Characterization Under Impulsive Loading", January 1, 1990-December 31,1990, \$25,000.
- **Honeywell Inc. Contract No. 637932-0W**, "Honeywell/MTU Graduate Internship Program in Dynamic Deformation of Materials" , January 31, 1990- December 31, 1990, \$32,756.
- **Alcoa Foundation 1989 Science Support Grant**, "Constitutive Equations for Shocked Ceramics", May 15, 1989, \$7,500.
- **Honeywell Inc. Contract No. 659354- VS**, "Honeywell/MTU Graduate Internship Program in Dynamic Deformation of Materials", March 2, 1989 - December 31, 1989, \$30,663.
- **Honeywell Inc. Contract No. 622895- VA**, "Material Characterization Under Impulsive Loading", January 1 - December 31,1989, \$25,000.
- **Honeywell Inc. Contract No. 163958-AA**, "Characterization and Response of Ceramics Under Shock Loading, May 1, 1988 - December 31,1988, \$25,000.
- **Alcoa Foundation 1988 Science Support Grant**, "Projectile Penetration of Shocked Ceramics," May 11, 1988, \$7,500.00.
- **Honeywell Inc. Contract No. 614824- VA**, "Material Characterization Under Impulsive Loading", January I-December 31,1988, \$25,000.
- **General Electric Foundation**, "Professional Engineering Writing Project", Summer 1987, \$850.00.
- **Honeywell Inc. Contract No. 971547-V A**, "Material Characterization Under Impulsive Loading", January I-December 31,1987, \$25,000; May 1, 1986-December 31,1986, \$18,591.00.
- **Honeywell Inc. Grant**, "Stress Wave Propagation and Dynamic Response of Materials", September 1, 1984-April30, 1986, \$20,000.00
- **NSF Grant No. DMR-8116363 (DMR78-05741)**, "Interphase Boundary Initiated Fracture", Aug. 1, 1981-July 31,1984, renewed Aug. 1, 1984-April30, 1986, Multi-Investigator Grant (13 faculty), T.R. Courtney, Principal Investigator, Co-investigator W.W. Predebon portion 1984-86, \$29,649.21; 1983-84, \$28,464.00; 1982-83, \$20,955.00; 1981-82, \$22,591.50.
- **NSF Supplemental Grant for Support of Undergraduate Engineering Research Assistants**, "Interphase Boundary Initiated Fracture", Sept. 1, 1983-Aug. 31, 1985, Multi-Investigator Grant (3 Faculty), T.H. Courtney, Principal Investigator, Co-investigator W.W. Predebon, \$9,976.00.
- **DuPont Undergraduate Participation Grant**, "A Study of the Elastic Response of a Two-Phase

Lamellar Eutectic Composite", W. W. Predebon and Karl E. LaPeer (student), Nov. 28, 1983 - May 18, 1984, \$625.00.

- **Dow Chemical Co. Grant**, "Computer Simulation with Experimental Comparisons of the Impact Response of Polystyrene and Polyethylene", July 1, 1983-Dec. 31, 1984, \$7,406.00.
- **NSF Grant No. DMR78-05741**, "Interphase Boundary Initiated Fracture", Aug. 1, 1978July 31, 1981, Multi-Investigator Grant (13 Faculty), T.H. Courtney, Principal Investigator, Co-investigator W.W. Predebon Portion 1980-81, \$22,591.50; 1979-80, \$38,405.00; 1978-79, \$33,253.00.
- **NSF Grant No. DMR7-02367 (DMR-02367A01)**, "Interphase Boundary Initiated Fracture", Multi-Investigator Grant (9-13 Faculty), H.I. Aaronson, Principal Investigator, Co-Investigator W.W. Predebon portion 1977-78, \$23,934.03; 1976-77, \$36,663.00.
- **U.S. Army Ballistic Research Laboratories Contract No. DAAK11-78-6-0059**, Aberdeen Proving Ground, MD., "Computational Analysis of the Influence of Various Parameters of the Performance of Discrete-Fragment Warheads", June 5, 1978 - Sept. 5, 1979, \$28,676.00.
- **MTU Faculty Research Grant**, "Shock Waves in Solids", 1976.

Equipment Donations:

- Led the effort to become a partner with General Motors, EDS, Sun Microsystems, and Unigraphics in the program **Partners for the Advancement of CAD/CAM/CAE Education (PACE)**, which began on August 30, 2000. the initial donation of the Unigraphics CAD/CAM/CAE software (Unigraphics NX) and Sun computer workstations was valued at over \$34 million. Others involved were Carl R. Vilmann and Chris E. Passerello.
- **Alliant FX800 Mini-supercomputer** donated to W.W. Predebon and P. Charalambides by Alliant Techsystems Inc. (formally Honeywell Inc.) Hopkins, MN. Estimated value 186,000. April 2, 1993.
- **Physical Acoustics Corporation (PAC) Acoustic Emission System PAC 3000/3004** and peripherals donated to W.W. Predebon by Honeywell's Ceramic Center, New Hope, MN. Estimated value \$29,680. September 28, 1988.

Other Funded Projects:

- **Michigan Department of Education**, Office of Equity, Select Student Support Services (45) Grant, Program Director: Chris S. Anderson. Graduate Teaching Assistants/New Faculty Orientation Project: Co-coordinator W.W. Predebon, 1995.
- **MTU College of Engineering 1993 Junior-Senior Research Internship Awards**. Partial support of Mechanical Engineering senior Jason W. Morgan and M.E. junior Peter o. Sweger, Summer 1993
- **MTU Faculty Development Committee, College of Engineering and Mechanical Engineering-Engineering Mechanics Department Award** for an Outside Speakers Program in the Solid Mechanics Seminar Series: \$1,700, 1992-93; \$2,300, 1991-92; \$5,000, 1990-91 , Co-Principal Investigator.
- **MTU College of Engineering 1988 Junior-Senior Research Internship Award**. Partial support of M.E. Senior Brian Murphy, Summer 1989.
- **MTU College of Engineering Summer Research Internships from Germany Award**. Partial support of Ulrich Hopmann, University of Hannover, Summer 1989.

Workshops/Courses/Conferences Attended:

- 2006 ASEE Annual Conference, Chicago, IL, June 17 – 21, 2006
- 2006 SAE World Congress, sponsored MTU alumni reception and made presentation, Detroit, MI,

April 4 – 8, 2006

- 2006 ASME International Congress, sponsored MTU alumni and students' families reception, made a presentation, Beijing, China, March 23 – April 3, 2006.
- 2006 SEM/IMAC Conference, sponsored MTU alumni reception and made presentation, St. Louis, MO, January 28 – February 2, 2006
- 2005 ICCES Conference, presented a paper, Chennai India, November 29 – December 8, 2005
- 2005 ASME International Mechanical Engineering Congress and RD&D Expo, sponsored MEEM Department reception and gave presentation, Orlando FL, November 5 – 11, 2005
- 2005 ASEE Annual Conference, Portland, OR, June 12 – 13, 2005,
- 2005 SAE World Congress, sponsored MTU alumni reception and made presentation, Detroit, MI, April 11-14, 2005
- ABET/ASME Preparedness Workshop in Coronado CA, March 11-12, 2005
- 2004 ASEE Conference, Salt Lake City, UT, June 17-23, 2004
- 2004 SAE World Congress, sponsored MTU alumni reception and made presentation, Detroit, MI, March 8-11, 2004
- 2004 ASME International Mechanical Engineering Congress and RD&D Expo, Clearwater, FL, March 5-7, 2004
- 2003 American Society of Mechanical Engineers Conference and Exposition (IMECE); attended Mechanical Engineering Department Heads meetings; sponsored ME-EM alumni reception and made presentation, Washington DC, November 16-21, 2003
- 2003 American Society for Engineering Education (ASEE) Annual Conference; attended Mechanical Engineering Department Heads Meeting; Nashville, TN, June 22-25, 2003
- 2003 Society of Automotive Engineers (SAE) Conference and Exposition; sponsored MTU alumni reception and made presentation, Cobo Hall, Detroit, MI, March 1-5, 2003

- 2002 American Society of Mechanical Engineers Conference and Exposition (IMECE); attended Mechanical Engineering Department Heads Meetings; sponsored ME-EM alumni reception and made presentation, New Orleans, LA, November 17-20, 2002
- 2002 American Society for Engineering Education (ASEE) Annual Conference attended Engineering Department Heads Meeting; Montreal, Quebec, Canada, June 16-19, 2002
- 2002 Society of Automotive Engineers (SAE) Conference and Exposition, Cobo Hall, Detroit, MI, April 2-6, 2002
- 2002 American Society of Mechanical Engineers Biennial Mechanical Engineering Education Conference, Clearwater, FL, April 7-10, 2002
- 2001 American Society of Engineering Education Annual Conference, Albuquerque, NM, June 23-28, 2001
- 2001 American Society of Mechanical Engineers International Mechanical Engineering Conference and Exposition (IMECE), New York, NY, November 10-14, 2001
- 2001 Society of Automotive Engineers (SAE) Conference and Exposition, Detroit, MI, March 4 – 7, 2001
- 2000 American Society of Mechanical Engineers (ASME) International Mechanical Engineering Congress and Exposition, Orlando, FL, November 5-8, 2000
- Co-organized and assisted with the third Induction Week, August 20-25, 2000 at MTU for 11 Ford employees, as part of the global MSME distance learning degree program.
- 2000 American Society for Engineering Education (ASEE) Annual Conference & Exposition,

Mechanical Engineering and Engineering Mechanics Department Heads Meeting, St. Louis, Missouri, June 17-21,2000.

- 2000 Society of Automotive Engineers (SAE) Congress & Exposition, Detroit, MI, March 4-8, 2000
- Co-organized and conducted the second Induction Week, August 22-27, 1999 at MTU for 13 Ford employees, as part of the global MSME distance learning degree program.
- Organized and conducted the first Induction week, August 23-28, 1998, at MTU for 15 ford employees, as part of the global MSME distance learning degree program. The University of Bradford assisted with some instruction.
- Mechanical Engineering in the Information Age Conference, Massachusetts Institute of Technology (MIT), Cambridge, MA, April 8-9, 2000.
- 1999 American Society of Mechanical Engineers (ASME) International Mechanical Engineering Congress and Exposition, Nashville, TN, November 14-19, 1999
- 1999 American Society for Engineering Education Annual Conference & Exposition, Mechanical Engineering and Engineering-Mechanics Department Heads Meeting, Charlotte, NC, June 20-22, 1999.
- 1999 Ford Global Dean's Conference, Cologne, Germany, May 15-21, 1999.
- 1999 Society of Automotive Engineers (SAE) Congress & Exposition, Detroit, MI, March 1-3, 1999
- 1998 American Society of Mechanical Engineers (ASME) International Mechanical Engineering Congress and Exposition, Anaheim, CA, November 1988
- 1998 American Society for Engineering Education Annual Conference & Exposition, Mechanical Engineering and Engineering-Mechanics Department Heads Meeting, Seattle, WA, June 29 – July 1, 1998.

- 1997 Ford Global Dean's Conference, Anglia Polytechnic University, Chelmsford, Essex, England, U.K., May 18-21, 1997. AJ. Day and W.W. Predebon gave a presentation.
- Ford Second University Partners Information Day, Dearborn, MI, May 13-14, 1997.
- 1997 ASME Mechanical Engineering Department Heads Conference, "Mechanical Engineering Education for Global Practice," San Diego, CA, March 19-20, 1997.
- Pickel Video Conference between Michigan Technological University and Ford Motor Company, U.S., with the University of Bradford and Ford of Europe, Dearborn, MI, February 26, 1997.
- Ford First University Partners Information Day, Dearborn, MI, October 22-23, 1996.
- Mechanical Engineering Undergraduate Education for the Next Twenty-Five Years, Massachusetts Institute of Technology, Cambridge, MA, October 7-8, 1996.
- Ford Global Dean's Conference, Ford Training and Development Center, Dearborn, MI, May 21-22, 1996.
- Ford Global Dean's Conference, Ford Training and Development Center, Dearborn, MI, Talk Given by W.W. Predebon, May 21-23,1995.
- Northern Michigan University/Michigan Technological University Joint Retreat, October 20 & 21,1994.
- Executive Leadership and Management Institute, Stanford University, Stanford, CA, July 10-20, 1994.
- 1994 American Society for Engineering Education, Annual Meeting, Edmonton, Ontario, Canada, June 26-29, 1994.
- 1994 Upper Peninsula Faculty Forum, Michigan Technological University, Houghton, MI, April

14 & 15, 1994.

- Creative Problem Solving Workshop, conducted by Edward and Monika Lumsdaine, Michigan Technological University, Houghton, MI, January 14-15, 1994.
- Gender Awareness Workshop, Michigan Technological University, Houghton, MI, October 28, 1993.
- U.P. Labor-Management 23rd Annual Conference, Danforth Place, Escanaba, October 26, 1993
- Efficacy Workshop Phase II, Michigan Department of Education, Office of Minority Project RISE (Retention Initiative in Science and Engineering), Michigan Technological University, Houghton, MI, October 14, 1993.
- O'Malley Conference on Excellence in Teaching, University of Notre Dame, Notre Dame, IN, September 10-12, 1993.
- 3M University Partnership in Total Quality, Michigan Technological University and Florida A&M University, St. Paul, MN, Aug. 8-11, 1993.
- Total Quality Symposium, Fourth Annual, Kansas City, Missouri, July 27-30, 1993.
- Efficacy Workshop for Educators, Michigan Department of Education, Office of Minority Project RISE (Retention Initiative in Science and Engineering), Michigan Technological University, Houghton, MI June 2-4, 1993.
- Forum on Exemplary Teaching, 1993 National Conference on Higher Education, American Association of Higher Education, Washington, D.C. March 13-17, 1993.
- Conference on "Writing in Engineering Design", Michigan Technological University, Houghton, MI, June 24-26, 1992.
- Floating Point Systems (FPS) T-Series Course, MTU, Houghton, MI, January 28-29, 1988, invited participant. Mathematical Methods in Engineering Science, MTU, Houghton, MI, 1984.
- Problem Solving Workshop, MTU, Alberta, MI, Jan. 16-17, 1980.
- Computer Workshop in Finite Element Methods of Analysis for Stress and Other Field Problems, Union College, NY, July 25-29, 1977.

Professional Service:

- American Society of Mechanical Engineers (AS ME) Department Heads Executive Committee At-Large member, 2004 – present, secretary June 2006 – May 2007.
- ASME Biennial Mechanical Engineering Department Benchmarking Study, Chair, 2000 – present
- Session Moderator: "**Globalization of Graduate Education**", Graduate Studies Division, 1997 American Society for Engineering Education Annual Meeting, Milwaukee, WI, June 15-18, 1997.
- Session Moderator: "**Teaching Graduate Students to Teach**," Graduate Studies Division, 1996 American Society for Engineering Education Annual Meeting, Washington, D.C., June 25, 1996.
- Session Moderator: "**Non- Traditional/Innovative Delivery Methods**," Graduate Studies Division, 1995 American Society for Engineering Education Annual Meeting, Anaheim, CA, June 26, 1995.

Major University Service

- Senior Vice President for Advancement and Marketing Search Committee Chair, 2000-2002

- Grievance Committee (appointed by President), Chair, 1995-1996
- Environmental Sciences and Engineering Building Program Committee, Chair, 1993-1995
- University Executive Vice President and Provost Search and Screening Committee, Chair, 1992-1993.

University Service:

- Academic Forum, 1997 - present
- Delta Sigma Phi Fraternity Faculty Advisor 1982- present
- Graduate School Cost/Benefit Review Group 2004 – 2005
- Distance Learning Budget Sub Committee 2001- 2004
- Distance Learning Implementation Committee, 1999- 2004
- Distance Learning Strategic Planning Sub Committee, 2002-2003
- National Selection Committee for MTU's Presidential Council of Alumnae (PCA) 1999 – 2001
- Director of Distance Learning Search, Chair, 1999-2000
- Task Force on Graduate Education and Research, 1998-1999
- Manufacturing Initiative Steering Committee, Chair, 1996, member 1997- 1999
- North Central Association Accreditation Self-Study Goal 3 Subcommittee, 1996-1997
- MTU Mont Ripley Ski Hill Advisory Committee 1990- 1994, 1996-1997
- Learning Center Directors Committee, 1996-1997
- Graduate Council Member, 1995-1997
- MTU Distinguished Teaching Awards Coordinator 1988-1997
- MTU Ski Club and Men's and Women's Alpine Ski Teams Faculty Advisor, 1981- 1997
- Center for Teaching, Learning, and Faculty Development Advisory Committee, 1996-1997
Search Committee for Director of Center for Teaching Learning and Faculty Development, 1995-1996
- Senate Ad Hoc Committee on Teaching, 1994-1996
- MTU UAW (United Auto Workers) Negotiation Team, 1993-1996
- Tau Beta Pi National Engineering Honor Society, Faculty Co-Advisor, 1989-1996 Efficacy Support Network Member, 1993-1995
- TQE Advisory Team Member, 1993-1994
- TQE Road Map Facilitator, 1993-1994
- Presidential Commission For Women, 1993-1994
- MTU Teaching Awards Committee, Chair, 1992-1993
- Senate Constitution and Constituency Committee, 1993
- University Task Force on Cost, Quality and Size: Undergraduate Subcommittee Member, 1991-1992
- Senate State of Michigan Teaching Excellence Awards Committee 1989-1991
- MTU Nordic Ski Teams Faculty Advisor 1981-1989: Developed proposal with club officers which resulted in Nordic Skiing becoming a varsity sport in 1989.
- Faculty Freshman Mentor 1987-1988, 1988-1989, 1989-1990 Katherine M. Bosch Program Committee, 1985-1988

- University Long Range Planning Committee, 1986-1989 Senate Budget Liaison Officer, 1984-1986, 1986-1989
- Senator-At-Large, 1983-1986, 1986-1989
- Computer Science Department Promotion, Tenure, and Reappointment Committee, 1987 -1988, 1988-1989
- Steering Committee Faculty/Board of Control Workshop, March 25, 1988, 1987-1988
Ph.D. in Engineering, Structural Mechanics Area Committee, 1984-1988
- University Ad Hoc Committee to Develop Preproposal to IBM for a Campus-Wide Computer Workstation/Network Facility, 1986
- Senate Teaching Effectiveness Committee, 1985-1986
- Faculty Polling for Distinguished Teaching Award, Chairman, 1985 and 1986
Mathematics and Computer Science Head Search Committee, 1984-1986
Creativity Grants Review Committee, 1984-1985
- Computer Advisory Council, 1984-1985
- Senate Committee on Retrenchment, 1983-1985
- University Long Range Planning to Year 2005 Committee, 1983-1984
University Maxi-Computing Sub-Committee, 1983-1984
- Ombudsman Selection Committee, 1983-1984, Chairman
- University Future Needs and Thrusts Committee, 1983-1984
University External Visibility Committee, 1983-1984
- MTU Long Range Planning Committee, 1982-1983
- Graduate Council Member 1980-1983
- MTU Campus Enrichment Committee, 1979-1983, Chairman 1980-1981
Michigan Tech Fund Fellowship Selection Committee, 1982
- Review Committee for M.S. in Computer Science, 1979-1980
- ASEE North Midwest Section Meeting, MTU, 1979, Publicity Chairman

College:

- Engineering Council, 1997 – present
- Center for Advanced Manufacturing and Materials Processing (CAMMP) Steering Committee, 1999 – 2000
- Untenured Faculty Development Seminar Series Committee, 2000 – 2001
- Academic Issues committee, 2004-2005
- Director of Distance Learning Search, Chair, 1999 – 2000

Department:

- Ad Hoc Chair Advisory Committee for Faculty Recruitment, Chair, 1997 - present
- Alumni Academy Committee, Chair, 1997 – present, member, 1993 – 1996
- Advancement Committee, Chair, 1997 – present, member, 1993 – 1996
- Diversity Committee, 2004 – present
- Executive Committee, Chair, 1997 – present, member, 1993 – 1996
- Executive Planning Committee, Chair, 1997 – present
- Faculty Development Committee, 1997 – present

- External Advisory Board (formerly Industrial Advisory Committee), 1997 – present
- Safety Committee, 2003 – present
- Staff Recognition Committee, Chair, 2003 - present
- Student Advisory Committee, Chair, 1997 - present
- Social Committee, 2000 - present
- Graduate Committee, Chair, 1993-1997
- Graduate Program Assessment Plan Committee, hair, 1996-1997
- North Central Association Accreditation Department Self-Study Committee, 1996-1997
- Engineering Learning Center for Statics, Dynamics, Mechanics of Materials and Thermodynamics, Organizer and Coordinator, 1990-1997
- Course Coordinator: Statics, EM211, 1989-1997, Dynamics, EM212, 1983-1997
- Computer Committee Member, 1991-1994
- Solid Mechanics Seminar Series - Organizer and Co-chairman, 1987-1992 Solid Mechanics Area Director (Acting) 1991 (3 mos.)
- Solid Mechanics Area Director, 1988-1990, 1980-1983
- Executive Committee, 1988-1990, 1980-1983

- Course Coordinator: Self-Paced Programmed Statics, EM210, 1981-1990, Self-Paced Programmed Dynamics, EM213, 1981-1990 Self-Paced Programmed Mechanics of Materials, EM342-1, 1983-1990
- Curriculum Committee, 1987-1988
- Solid Mechanics Curriculum Review Committee 1987-1988
- Ad Hoc Engineering Graphics Review Committee, 1985-1986, Chairman Microcomputer Committee, 1984-86
- Curriculum Review Committee, 1984-1985
- Graduate Recruitment Committee, 1984-1985, Chairman
- Faculty Development Committee, 1981-1983
- 1986 and 1982 Midwest MINI-BAJA Competition at MTU, sponsored by SAE Student Branch of ME-EM Department, responsible for setting-up and actual timing of acceleration, top speed, and braking events for all vehicles.

Public Service

- Keweenaw Community Foundation Board of Trustees, 2004-present
- Keweenaw Economic Development Alliance (KEDA), member 2004-present

Community and Other Activities:

- Alpine official, United States Ski Association (USSA), have run central division USSA Age Class and Ability Class races at MTU Mont Ripley, Ripley, MI from 1985-2000.
- Copper Country Alpine Ski Club, 1978-1995, held various positions to include, Vice President, Race Chairman, Executive Board Member, Responsible for Timing Equipment and Advisor.
- Presentation to high school juniors and seniors at the Copper Country Intermediate School District Career Day at Michigan Tech on Engineering careers; included high school preparatory courses, admission requirements, engineering curricula, life in college as an engineering student,

and what are examples of projects that civil, environmental, mechanical, electrical, geological, mining, and metallurgical engineers are given in practice, November 1995, March 1993, March 1992, March 1988, March 1986.

- Coach; Houghton Little League Baseball Team 1978-80, Houghton Senior Little League Team 1981-83, Houghton American Legion Team 1984-87, Treasurer, Houghton Little League and Senior League Association, 3 years.