



Paid Summer Research Experience for Science/Math Teacher (Grades 7-12) in Gamma-Ray Astrophysics

Applications Due: March 15, 2019

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This on-campus summer research experience will allow you to become immersed in a research project in the field of modern-day astrophysics which can be translated into fresh perspectives on the material that you teach. Dr. Petra Huentemeyer, an associate professor in the Department of Physics at Michigan Technological University in Houghton, MI, has received a grant from NSF to investigate highest energy gamma-ray emission from the Milky Way. Her research group studies extreme astrophysical environments such as for example star forming regions, remnants of super novae, pulsar wind nebulae, and binary star systems using data from the HAWC Gamma-Ray Observatory. Dr. Huentemeyer has created a summer internship position for a secondary science teacher to work with her and her research group on the analysis of HAWC data. The exact scope of the research can be tailored to mutual satisfaction. The teacher may focus their work on helping with the HAWC experiment, applying HAWC data to classroom lessons, or creating materials for the classroom around the ideas studied in HAWC research. The program may include instruction on computationally-based research with large data sets from a state-of-the-art astrophysical telescope and the design of age-appropriate, content-rich, inquiry-focused learning activities for middle or high school students.

Program/Schedule

- June: Introduction to the program and development of research topic in collaboration with Dr. Huentemeyer's research group, self-paced, remotely from home/school (2-3 hours/week)
- July/August: intensive collaborative research on campus and development of necessary skills (30-40 hours/week)
- During following school year: the teacher will work with Dr. Huentemeyer and her group on secondary curriculum development

Logistics and Benefits

- When: 6 weeks on campus during the summer of 2018, exact start/end dates are negotiable though a start date at the beginning of July is anticipated (e.g. July 1 – August 9)
- Where: Michigan Technological University in Houghton, MI, <http://www.mtu.edu/>
- Compensation: \$3000 stipend plus room and board
- Travel reimbursement up to \$700 for roundtrip to Houghton
- Funding available to present research experience and/or newly developed curriculum at a professional scientific conference (e.g. American Physical Society) or professional education conference (e.g. National Science Teachers Association, American Association of Physics Teachers). If the collaboration leads to published work, the teacher will be included as a co-author

For more information on Dr. Huentemeyer's research, please visit the homepage of the HAWC observatory at: <http://www.hawc-observatory.org>, her homepage at: <https://www.mtu.edu/physics/department/faculty/huentemeyer/>, or send her an email: petra@mtu.edu.

Application

Applications should be submitted via email to Dr. Petra Huentemeyer at petra@mtu.edu. Please provide your resume, current school and district, and 2019-20 school (if different). A letter of reference may be included if desired, but this is not required.

Interested teachers should attach a statement of interest addressing the following items:

- What is it about this research project that interests you?
- How would working on a research project like this benefit you, your students, etc.?
- What is your teaching experience (number of years, subjects taught, etc.)?
- Do you have any non-teaching skills or interests relevant to this RET?
- Do you have any experience with scientific research, amateur astronomy, and/or astronomical data analysis?
- What is your programming experience, including language(s) as well as proficiency level? (Programming skills are NOT required, this will just help us to tailor the project to your experience)
- What is your school's general level of student technology (computer labs, student laptops, linux/unix machines, etc.)?
- Which start/end date would you prefer?

Please return your completed application by Friday, March 15, 2019.