



Aurora Borealis over Michigan Tech Campus © H. Zhou

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

Applications Due: March 16, 2022

This on-campus summer research experience will provide teachers with an opportunity to immerse themselves in modern-day astrophysics research and receive guidance in translating their learning into new classroom materials. Dr. Petra Huentemeyer, a 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 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 *two summer internship openings* for secondary science teachers to work with her research group on the HAWC science. The scope of this research experience will be tailored to the participants' experience and interest. The program may include instruction on computationally-based research with data sets from state-of-the-art astrophysical telescopes and the design of age-appropriate, content-rich, inquiry-focused learning activities for middle or high school students. *For examples of lesson plans developed in previous years of this program, please visit <http://phy.sites.mtu.edu/RETlessonplans>.*

### Program/Schedule

- **Off-campus (~4 weeks):** Before arriving in Houghton, the participants are asked to work remotely for 2-3 hours/week on introductory material and preliminary project development, in collaboration with Dr. Huentemeyer's research group.
- **On Campus (~6 weeks):** The participants will work intensively on their collaborative research project and secondary curriculum, 30-40 hours/week.
- During following school year: the teachers will work with Dr. Huentemeyer and her group on further secondary curriculum development and assessment.

### Logistics and Benefits

- **When:** 6 weeks on campus during the summer of 2022, exact start/end dates are negotiable though a start date at the end of June is anticipated (e.g. June 27 – August 5)
- **Where:** Michigan Technological University in Houghton, MI, <http://www.mtu.edu/>
- **Compensation:** \$4,200 (we will help with finding accommodation)
- **Travel funds:** Up to \$2,000 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) – during the following year. 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](mailto:petra@mtu.edu).

## **Application**

Applications should be submitted via email to Dr. Petra Huentemeyer at [petra@mtu.edu](mailto:petra@mtu.edu). Please provide your resume, current school and district, and 2022-23 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 Wednesday, March 16, 2022.**