



PAN (Physics of Atomic Nuclei)

July 22-27, 2018



Audience

24 science-focused high school students. 12 students were female, and 3 were underrepresented in the field. Participants were selected based on interest in science as demonstrated through their applications.

Funding

Program expenses (~\$15,000) are provided by a National Science Foundation grant to the Joint Institute for Nuclear Astrophysics-Center for the Evolution of Elements (JINA-CEE), making PAN free to accepted applicants. The National Superconducting Cyclotron Laboratory (NSCL) also supports PAN by donating facilities and faculty/staff volunteers in kind.

Objectives

JINA-CEE's goals for PAN are as follows:

- Teach students about the discipline and current topics of nuclear astrophysics.
- Promote the importance of nuclear research as a worthy investment.
- Introduce students to undergraduate/graduate life and research careers at MSU.
- Increase interest in nuclear physics/astrophysics.

Description

PAN (now in its 25th year) houses participants on campus. The 45 intentional contact hours of the program are an intensive mix of faculty lectures, activities, and training sessions introducing students to experimentation methods, equipment, and results. These prepare students to conduct research using various detectors and modeling code. Students complete the program with a poster session to report their findings. Optional activities each evening allow students to learn more about MSU, research, and the college experience. PAN activities were directed and supported by 5 MSU faculty, 2 MSU postdocs, 8 MSU graduate students, 2 MSU undergraduate students, and 3 MSU staff members.

Outcomes

Students' attitudes towards research careers were measured with pre/post surveys.

- 100% of students agreed that PAN improved their understanding of the work involved in a science career and their understanding of how to prepare for a science career.
- 84% of students reported increased interest in physics, nuclear physics and nuclear astrophysics career paths.
- 84% of students expressed increased excitement about attending college.
- 92% agreed that the faculty, staff, and students involved in PAN gave them a positive impression of

scientific research.

- 100% agreed that they had learned useful things about research at NSCL, science careers, and nuclear science.
- 96% strongly agreed that they would share what they had learned with family and friends.
- 84% agreed that PAN had increased their interest in attending MSU.
- 100% agreed that they found PAN useful and would recommend it to a fellow student.

In response to survey questions, students offered these thoughts on their PAN experience:

- "This camp gave me more options for my future, given me the inspiration to continue in my field of interest and has generally opened my eyes to the inner workings of the scientific world."
- "This program has increased my confidence in majoring in physics and continuing education in physics, along with challenging me to think harder and creatively about the topic material."
- "This was one of the best weeks of my life. I learned so much and it was invigorating to be with so many other kids interested in this field."

Contact Information

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