



NASA/IPAC TEACHER RESEARCH PROGRAM  
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### **High school teachers and students continue doing real astronomy research.**

It's time! At the winter meeting of the American Astronomical Society (AAS), running from January 4 through January 8 in Phoenix, AZ, 8 astronomy educators and their students from the NASA/IPAC Teacher Archive Research Program (NITARP) are attending, plus 11 NITARP alumni educators about to start work on teams in 2026.

For 20 years, NITARP has partnered small groups of educators with a research astronomer for original, year-long, authentic research projects. At the AAS meeting, the educators from the 2025 class, along with some of their students, are presenting the results of their work over the past year. For 2026, we are switching things up and having a class consisting of self-funded NITARP alumni; they are getting started on their projects.

From NITARP's early years through the 2025 class, a total of 152 educators from 44 states have participated or will participate; the 2025 class has our first participants from Georgia and Alabama. NITARP works with educators because, through them, NITARP reaches thousands of students per year with information about how science really works, what NASA does, and the wealth of astronomy data that is freely available to the public.

Here are the teams that are presenting their work at the January 2025 AAS meeting.

2025 team working with Dr. Varoujan Gorjian (JPL/IPAC):

- Ben Senson, educator mentor, Madison Metropolitan School District Planetarium and Madison College, Madison, WI

- Lauren Albin, O. Wayne Rollins Planetarium, Young Harris, GA
- Meredith Cullen, UMS-Wright Preparatory School, Mobile, AL
- Kevin Molohon, Champlin Park High School, Champlin, MN

This team made use of data originally collected to look for variability in the infrared brightness of young stars. Instead of young stars, they used that data to identify infrared variability in active galactic nuclei (AGN), which are supermassive black holes accreting matter in distant galaxies. They looked at nine star forming regions in our Galaxy which were monitored by the Spitzer Space Telescope and have applied various techniques to separate out the foreground young stars from background objects resulting in over 80 candidates that are likely very distant variable AGN. Once verified, these AGN, which are going through a significant variability phase, will be ideal targets to study the accretion of gas onto their central supermassive black holes.

2025 team working with Dr. Luisa Rebull (Caltech/IPAC):

- Jeff Benter, educator mentor, Tri-Valley High School, Downs, IL
- Clayton Edwards, Collins Academy High School, Chicago, IL
- Steve Jones, FCS Innovation Academy, Alpharetta, GA
- Eden Pfahler, Falmouth High School, Falmouth, ME

This team used Transiting Exoplanet Survey Satellite (TESS) data to study the rotation rates of stars in the Beta Pictoris Moving Group (BPMG). The BPMG is nearby ( $\sim 50$  pc) and young ( $\sim 20$  Myr); it is at a particularly interesting age for understanding how the rotation rates of stars change with age and mass because the stars are in the process of shedding their circumstellar disks. Stars are likely to spend a significant fraction of their young lives locked to the rotation rate of their inner disks; once the disk is dispersed, they are free to spin up. This team determined new rotation periods for nearly 200 stars, about half of which have never been determined before. The distribution of rotation rates they found is broadly consistent with expectations in that early M stars rotate the slowest, with both higher and lower mass stars rotating faster. However, the distribution specifically of rotation rates of the BPMG M stars suggests that TESS source confusion may still be playing a role in these data; further work is warranted.

All of their posters are available on the NITARP website right now, along with several posters presented by the self-funded NITARP alumni who also attended the meeting. <https://nitarp.ipac.caltech.edu/event/70-AAS-2026>

The 2025 educators will now go on to conduct at least 12 hours of professional development for their colleagues in their schools and communities, at the local, regional, and national levels.

The educators for the 2026 class are, at this time, all self-funded. As such, they are drawn from the NITARP alumni, and they will be doing scientific research in 2026,

and also developing curriculum to share with the NITARP alumni community and the wider community of educators worldwide. They are:

2026 team working with Dr. Luisa Rebull (Caltech/IPAC):

- Michael Bechtel, Wartburg College, Waverly, IA
- John Blackwell Phillips Exeter Academy, Exeter, NH
- Olivia Kuper, North Greene High School, Greeneville, TN & Texas Tech University, Lubbock, TX
- Laura Orr, Ukiah School District, Ukiah, OR
- Ace Schwarz, The Shipley School, Bryn Mawr, PA
- Ben Senson, MMSD Planetarium/Madison College, Madison, WI

2025 team working with Dr. Varoujan Gorjian (JPL/IPAC):

- Clayton Edwards, Collins Academy High School, Chicago, IL
- Justin Hickey, Episcopal High School, Bellaire, Texas
- James Newland, Texas Advanced Computing Center, University of Texas at Austin, Austin, TX
- Eden Pfahler, Falmouth High School, Falmouth, ME
- Thomas Rutherford, King University, Bristol, TN & East Tennessee State University, Johnson City, TN

They plan to present their results at the 2027 AAS winter meeting to be held in Salt Lake City, UT.

IPAC, based at Caltech, in Pasadena, CA, is leading this program. These teams use archival data from the NASA/IPAC Infrared Science Archive (IRSA), the NASA/IPAC Extragalactic Database (NED), and/or the NASA Exoplanet Archive, all of which are based at IPAC, while also supplementing these data from other NASA archive holdings. Funding comes from the NASA Astrophysics Data Analysis Program.

This group photo includes all of the 2025 and 2026 participants, as well as additional NITARP alumni, who attended the AAS.

