



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 12 through January 16 in National Harbor, MD, 14 astronomy educators and 14 of their students from the NASA/IPAC Teacher Archive Research Program (NITARP) are attending, plus 11 NITARP alumni educators.

For nearly 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 2024 class, along with some of their students, are presenting the results of their work over the past year. Meanwhile, the educators from the 2025 class are meeting their teams and getting started on their own projects. And if that wasn't enough, 11 NITARP alumni educators also attended the AAS meeting, often bringing their own students and presenting new work that they have completed.

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 2024 AAS meeting.

2024 team working with Dr. Varoujan Gorjian (JPL/IPAC):

- Ben Senson, educator mentor, Madison Metropolitan School District Planetarium and Madison College, Madison, WI
- David Forester, Mission Vista High School, Oceanside, CA
- Lenee Mason, Copiague Middle School, Copiague, NY
- Michelle Riordan, Police Activities League of Egg Harbor Township & Atlantic County, Egg Harbor Township, NJ

This team worked with data from NASA's space-based Wide Field Infrared Survey Explorer (WISE) telescope and ESA's space-based Gaia telescope to study an unusual subset of galaxies. The Gaia survey has a database of 1.2 billion sources that have been monitored for years to detect their inherent motion on the sky, called proper motion. Regardless of how much real movement stars have with respect to the Earth, farther stars should show less apparent motion than nearby ones, and galaxies outside of our own should show no proper motion at all. But a small number of very far galaxies have unexpectedly shown significant proper motion values in the Gaia data. This NITARP team tried to see what might be the cause of these anomalous values by using a catalog of over 4 million far away galaxies identified by the WISE telescope and matching them to the Gaia catalog. The team discovered over 2000 galaxies that showed unexpected proper motion values. In analyzing these galaxies, a trend emerged where a higher percentage of these sources seemed to have bright, nearby neighbors, thus potentially confusing the Gaia measurements leading to the unusual proper motion values.

2024 team working with Dr. Luisa Rebull (Caltech/IPAC):

- Jeff Benter, educator mentor, Tri-Valley High School, Downs, IL
- April Andreas, McLennan Community College, Waco, TX
- David Dahari, Wahconah Regional High School, Dalton, MA
- Joseph Perry, Palmyra Macedon High School, Palmyra, NY

The StarChasers team looked for new young stellar object (YSO) candidates in two regions in the constellation Cassiopeia. They used optical and infrared archival data from several different surveys, including NASA's WISE and Spitzer telescopes. There have been 5 large-scale surveys that identified YSO candidates over large parts of the sky that included these regions, but none of them used as much data as this team did. They collected all of these YSO candidates from the literature, and added to them new YSO candidates that they identified using IR and H- α excesses. They then used all the photometric data they could find to assess the literature and new candidate YSOs in these two regions. They found that about a third of the total YSO candidates in one region and about half in the other were candidates in which they had high confidence were likely to be YSOs, for a net total of ~120 likely new YSOs.

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/66-AAS-2025>

The 2024 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.

NITARP is announcing today the 2025 class of educators and their teams, as follows:

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

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

They are meeting each other for the first time at this AAS meeting in National Harbor and are learning about their projects. They plan to present their results, with their students, at the 2026 AAS winter meeting to be held in Phoenix, AZ.

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 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 2024 and 2025 participants, along with the NITARP alumni who also attended the AAS.

