

The SAO Astronomy REU Summer Program: The First 26 Years



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The NSF-funded SAO REU began in 1994. Its goal has been to prepare students for graduate school and to provide opportunities for a diverse group of students. In addition to giving students a research project experience, the program emphasizes professional development and paper writing. Many of our students have gone on to great success in astronomy and in other fields. It seems like a good time to look back on the program to date.



1994



1995



1996

NO
PHOTO
AVAILABLE

1997



AAS Jan 2019: SAO REU alums at CSMA meeting

Using the Clark Refractor



1998



1999

NO
PHOTO
AVAILABLE

2000



2001

Over the past quarter of a century, 261 undergraduates have gone through the SAO (Smithsonian Astrophysical Observatory) Astro REU (NSF-funded Research Experience for Undergraduates) at the CfA (Center for Astrophysics) on the Harvard campus. Each year 10 to 11 students (about-to-be-juniors and -seniors) come to Cambridge (MA) for a 10 week program in research and professional development. This seems like a good time to look back over the program's achievements.

We get between 250 and 350 applications a year. In our selection process we emphasize the essay over grades, and seek to recruit students from diverse backgrounds who have demonstrated interest and effort. Since the program's inception the classes have been at least 50 percent women. In the early years we were not as successful at recruiting minorities as we would have wished, but we are encouraged that we've been able to attract more diverse cohorts in recent years (resulting in a 17% URM average over 26 years).

Each student is paired with an advisor for a **research project** in some area of astrophysics (we've had projects from planetary science to cosmology, theory to hardware, and many playing on CfA's strengths in star formation and X-ray astronomy). Scientists typically have a lot of summer travel, and so after some initial hiccups we learned to require a backup advisor for when the primary is away for a week or more, and the directors stay up to date with projects so they can also step in.



2002



2003



2004



2005

While the opportunity to do cutting-edge research is a key element of the REU, we strongly believe that research is not enough – we want to train well-rounded scientists. From student arrival day, when we take them out to dinner at Harvard Square's Border Cafe, we emphasize the community in 'astronomical community' and, as program directors, engage with our students on a daily basis rather than leaving them to individual project advisors. As well as social events, we have a weekly group meeting where students present their work to each other. Training in technical skills such as python programming and use of ADS is supplemented by an ethics exercise and panels on topics such as grad student applications and post-astronomy careers. We believe that these **professional development** elements of our program have been a strong factor in our former students' positive memories of their summer.

A **weekly colloquium program** introduces the students to subjects beyond their own project areas. The colloquium speakers are mostly postdocs or advanced grad students – not so many years ahead, so the students can see themselves in that role (usually at least one of the speakers is a program alum).

The main formal products of the summer are a bound **book of student papers** (these are at a not-quite-ready-for-ApJ level but often form the basis of a later paper with post-program collaboration by the student and advisor); a short talk in our annual **student symposium**; and a **poster** given at the January AAS.

C. Jones founded the program and served as PI until 2016 when M. Ashby took over the lead role. J. McDowell was an informal helper for the first few years and later became co-director. We also thank Kim Dow, Tania Ruiz, Sherry Winkelman, Saku Vrtilek, Melissa Cirtain and Marie Machacek for their role supporting the program, as well as Natanya Ness and Kara Tutunjian who provided administrative support. Special thanks to Jim Wright of NSF who was critical in the genesis of the program.

Our alums have gone on to success in many different roles, especially in data science. Over 150 remain in astronomy: the alums include tenured faculty, staff scientists, and one director of a major observatory – see planet4589.org/astro/reu/index.html for details!) We can't wait to see what this year's students end up doing! And if you are an undergrad, please consider applying for **summer 2020 – deadline is Feb 1!**

<https://www.cfa.harvard.edu/opportunities/reu/applications.html>
2019 posters at this meeting: 170.12 173.01 207.01 207.04 207.10 272.18 273.09 276.18 305.22 308.24



2006



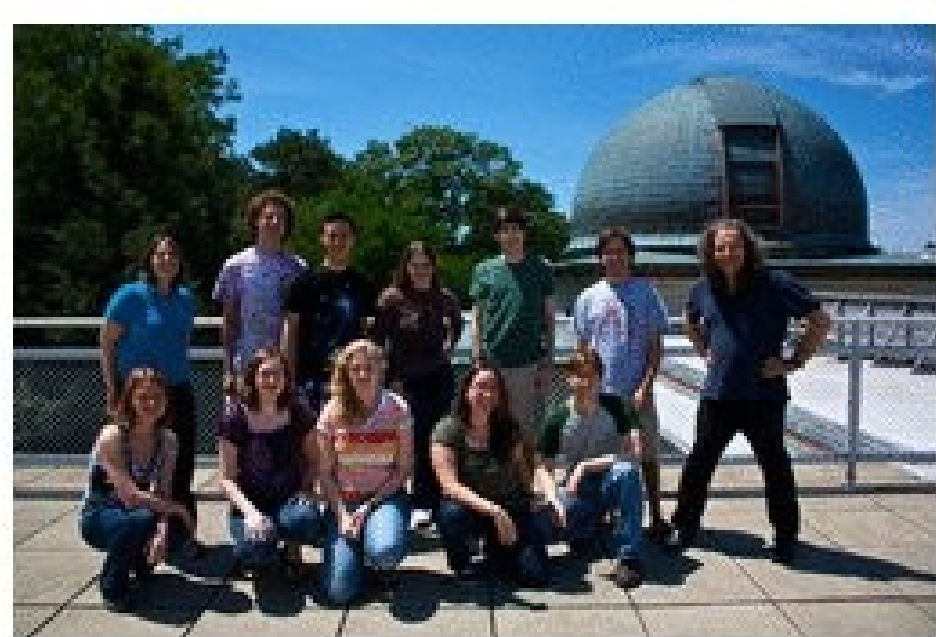
2007



2008



2009



2010



2011



2012



2013



2014



2015



2016



2017



2018

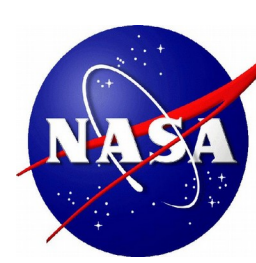


2019



REU reunions at AAS, 2014 and 2019

1997/2000/2007 Intern? Have a group photo from those years? Please send it to me!!



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