

I OFFICE OF DIVERSITY AND INCLUSION

An important component of NRAO's mission is the development and training of the next generation of scientists, engineers, and other professional and technical experts in support of the full spectrum of careers that support the field of astronomy and astronomical observatories. Many of the programs in the Office of Diversity and Inclusion (ODI) efforts are focused on building the Science, Technology, Engineering, and Math (STEM) pipeline, particularly in supporting the inclusion of minority and underrepresented groups in education, training, and employment opportunities. This pipeline includes K-12, undergraduate, graduate, and postdoctoral students. Within the mandate and mission statement of NRAO, under-represented groups include, but are not limited to: people of color, women, economically disadvantaged, and first-generation college students.

Programs described here are based upon NRAO's 10-year plan to operate a world-class observatory, while building a strong and effective STEM pipeline in partnership with national and international universities, organizations, and other observatories. Programs described here are also based upon NRAO's Diversity Strategic plan.

In FY2018, Diversity and Inclusion efforts across the Observatory will focus on the following key areas: broader impacts, new and on-going recruitment pipeline initiatives, workforce hiring, retention, training, and workplace culture.

In 2018, ODI will continue to:

- Develop opportunities to leverage and coordinate existing resources, talents, and projects across Observatory departments (e.g., HR, EPO and SSR);
- Expand outreach programs focused on African-American, Native American, Hispanic American, and other underrepresented populations;
- Develop and offer diversity and cultural-competence training and education for all staff;
- Support HR's diversity recruitment efforts;
- Assess and enhance NRAO's workplace culture;
- Manage and improve ongoing ODI programs; and
- Work with non-NRAO partners, including Historically Black Colleges and Universities (HBCUs) and Hispanic-Serving Institutions (HSIs), to improve opportunities for women and underrepresented minority (URM) students to participate in astronomy-related research.

The Diversity Council

The Office of Diversity and Inclusion is staffed by the ODI Director, and is advised by the NRAO Diversity Council comprised of the ADs of HR, SSR, EPO, PMD, Socorro, CDL, OCA, and GBO Director. The Council will meet quarterly, provide advice as needed and requested by the ODI Director, assist the ODI by supporting and coordinating observatory-wide efforts to improve and enhance diversity in all aspects of observatory operations, and facilitate communications between all departments at NRAO.

Diversity and Inclusion Advocates/Committees

The Diversity & Inclusion (D&I) Advocates promote the advancement of diversity and inclusion within their NRAO site, and across the Observatory. The advocates work directly with the Office of Diversity & Inclusion Director to support specific D&I initiatives throughout the Observatory, in addition to providing recommendations that address site specific D&I issues. The D&I Advocates act as their site's lead spokesperson for the site's diversity and inclusion efforts.

Achieving Parity in the NRAO Staff

A key objective for the NRAO workplace is to achieve parity with the nation's demographics for people of color and women. HR and ODI will continue to carefully vet all NRAO position advertisements to make them as broadly appealing as possible, and continue to work with senior management to craft and support unbiased search committees. In FY2018, ODI and HR will work together to continue to refine, and maintain, a training program that (a) emphasizes the relevance and importance of a diverse workplace, and (b) offers learners opportunities to better understand and overcome unconscious biases that affect hiring decisions.

Diversity and Cultural Awareness Training

Finding common ground in an environment rich with varying opinions and perspectives can be an organizational challenge. Education and awareness initiatives that teach employees how to succeed and perform optimally across a multi-cultural workforce can directly support diversity efforts in the workplace. Diversity education encourages thoughtfulness and consideration between co-workers of different nationalities and backgrounds. Cultural awareness is achieved when all employees in a company can appreciate the benefits of cultural diversity. The numerous benefits of cultural diversity stem from the fact that people from different cultures bring different perspectives to the table, introducing new ideas, perspectives and personalities into strategic planning processes and workplace activities in general. A culturally diverse and aware workforce can create a culture of mutual respect and dignity, garnering a reputation as a fair employer in the job market. In FY2018, diversity awareness opportunities will be offered across the Observatory utilizing a mixture of outside speakers, online training, and discussions focused on cultural awareness. Diversity awareness will also be incorporated in supervisor and management trainings, and NRAO's on-boarding program. Importantly, diversity speakers will be scheduled as a part of the summer internship experiences for undergraduates.

ODI will continue to support, in conjunction with HR, the Workplace Answers online training modules, and will continue to make these courses available to NRAO staff as appropriate and possible. Examples of courses that have been, and continue to be, offered include:

Coaching and Mentoring	Uncovering Implicit Bias
Conflict Resolution	Team Building Across Cultures
The Power of Respectful Language	Transitioning to Respect
Diversity in Action	Unlawful Harassment Prevention
Practicing Inclusion: Diversity Awareness	The Bystander Effect

1.1 Local and National Programs

African American Teaching Fellows (AATF)

The mission of the African American Teaching Fellows (AATF) is to recruit, support, develop, and retain a cadre of African American teachers to serve the schools of Charlottesville and Albemarle County. In FY2018, NRAO will continue its partnership with the AATF by supporting its annual summer institute, and will coordinate with EPO to explore opportunities for utilizing curriculum materials as part of their teaching goals to strengthen the relationship between NRAO, AATF, and the local public schools.

VA-NC Louis Stokes Alliance for Minority Participation

The VA-NC Louis Stokes Alliance for Minority Participation (LSAMP) program is designed to improve access to STEM research experiences for underrepresented minority undergraduate students. Students are identified through the University of Virginia's recruitment from Minority-Serving Institutions (MSIs). In FY2018, following the award of a five-year extension of the VA-NC Alliance/LSAMP program, NRAO will serve as a VA-NC Alliance Partner. Under this award, NRAO will host one to two students for a summer internship conducting astronomy-related research. The NRAO-Alliance fellow(s) will have opportunities to conduct hands-on research, observe at the VLA, use advanced software applications and/or participate in classroom activities. NRAO will continue to facilitate and sponsor a GBO trip for the FY2018 VA-NC Alliance summer students.

In FY2018, ODI and the VA-NC Alliance will explore the possibility of sending Alliance student(s) to Chile to participate in research experiences with ALMA scientists.

National Astronomy Consortium

The National Astronomy Consortium (NAC) is a program led by NRAO in collaboration with the National Society of Black Physicists (NSBP) and several minority- and majority-serving universities and observatories. The goal of the NAC program is to build a pipeline of students from underrepresented and underserved groups to STEM fields that support full-spectrum astronomy. The NAC uses a cohort model, multiple mentors, professional development, and lifelong career mentoring to increase participation of underrepresented groups in astronomy-related careers. The NAC program is coordinated by the ODI Director, in conjunction with the NAC Advisory Board. NRAO hosts a yearly cohort of four to six students at one or more of its sites; NAC students interact with other REU students to take advantage of shared resources, and to increase peer networking opportunities.

In FY2018, the NAC program will make efforts to increase the number of minority- and majority-serving partner institutions in the consortium, and will recruit students through visits to MSIs, the Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) conference, and the AAS.

The NAC will also host its annual conference (NAC VI) in August-September 2018. This conference is designed to maintain and increase participation from MSIs and Majority Serving Institutions and Universities, and to build and sustain an enduring pipeline of underrepresented future STEM leaders.

Radio-Astronomy Middle-School Path to University Physics Program (a.k.a. AstroKids)

Hampton University, a minority-serving institution, with support from NRAO, has initiated a bridge program, Radio Astronomy Middle School Path to University Physics (RAMP-UP or AstroKids, designed to provide a pipeline between middle-school programs, like PING or RAP-NM, and the NAC program. RAMP UP provides continuous exposure to physics and astronomy research to identified students in the Hampton Roads area until 12th grade. During FY2018, ODI will continue to work with Hampton University to further develop and support this program, with an eye toward designing a path for the RAMP-UP participants to segue to the NAC program. As part of the development work, and to provide a mentor for the RAMP-UP students, ODI may partially support a Hampton University student for the FY2017–18 academic year. ODI will consult with EPO for advice regarding appropriate astronomy and physics related teaching resources for high school students. In FY2018, the RAMP-UP students will be invited to present their research at the annual NAC meeting.

National Society of Black Physicists (NSBP) and Society for the Advancement of Chicanos/Hispanic and Native Americans in Science

The NSBP and SACNAS are the premier professional societies dedicated to promoting the success of underrepresented minorities in STEM fields. ODI's programs support this mission, and ODI will participate in NSBP and SACNAS annual conferences in order to build and maintain strong partnerships with these societies. ODI will also explore the possibility of co-hosting an NSBP conference at the UVA/NRAO in FY2018 or FY2019.

Radio Astronomy Program - New Mexico (RAP-NM)

The Radio-Astronomy Program New Mexico (RAP-NM) is a collaboration between NRAO-EPO and New Mexico Tech. In FY2018, following the 2017 pilot (a week-long summer camp experience for rising ninth-graders developed by EPO), ODI and EPO will work together to identify the best way to incorporate underrepresented undergraduate mentors into the program.

Socorro Electronics Division's Laboratory Experience for Undergraduates (SEDLE)

The Socorro Electronics Division's Laboratory Experience for Undergraduates (SEDLE) is designed to offer promising underrepresented undergraduate students an opportunity to gain laboratory experience with NRAO's world-class Socorro Electronics Division. In FY2018, ODI will continue efforts to expand participation in STEM fields by offering summer lab experiences to women and Native American students from Hispanic-serving institutions (HSIs). ODI will recruit students through SACNAS, and direct contact with two- and four-year HSIs beyond the Socorro region. Selected students (1–2/year) will be integrated into a small team of engineers and technicians for 8–10 weeks, and will be expected to complete a project and prepare a report.

1.2 International Partnerships

National and International Non-Traditional Exchange

The National and International Non-Traditional Exchange (NINE) program objectives are to increase diversity and improve the environment for diversity for the purpose of human capacity development. The NINE is focused on building the next generation of scientists, technicians, administrators, engineers, and others interested in careers supporting the field of radio astronomy. The NINE Program is designed to

entice the best and brightest candidates from typically underrepresented organizations, both nationally and internationally, into high quality programs designed to benefit the participant, each partnering location, and the radio astronomy community as a whole.

The NINE program, through its training sessions, provides learning opportunities throughout many disciplines affecting the full spectrum of activities associated with designing, constructing, and operating radio astronomy observatories: Human Resources, Education and Public Outreach, Electronics, Engineering, Technicians, Operators, Project Management, Systems Engineering, and many others.

NINE uses training sessions to provide the necessary skills and experience so that the participant, upon returning to their home location, is prepared to take on the role of a NINE trainer in their field of experience.

The NINE Training program's primary objectives are to:

- 1) Provide training through short programs (up to three month's duration, depending upon session) designed to teach project management, along with other sustainable skills in any STEM functional area associated with radio astronomy; and
- 2) Position the participant to successfully develop a NINE Hub, capable of providing training in the STEM field of experience.

An important synergistic component of the NINE program is to provide NAC leadership opportunities. One or two NAC students are accepted into the NINE and follow the program. Upon completion, the NAC participants may come back and lead the next NINE program, while the NINE participants go on to their home organizations with the intent to set up and lead a NINE Hub, or a replicated version of the NRAO NINE program tailored for their own local population's culture and needs.

In FY2018, the NINE program will continue to develop relationships with national and international partners, including the development of additional hub(s).

Sister Cities

Sister Cities is a program developed by AUI to foster cultural exchanges, and STEM education, between communities near the ALMA and VLA telescopes. In FY2018, ODI will continue to support the Sister Cities program by serving in an advisory capacity to the Office of Chilean Affairs (OCA), AUI, and EPO. ODI will also use its connections with SACNAS to recruit potential mentors for the program.