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# Georgia Southern University professor receives National Science Foundation grant

*OCTOBER 11, 2007*

Georgia Southern University faculty member Sarah Higdon has been awarded a \$179,376 grant from the National Science Foundation (NSF).

The five-year collaborative grant is designed to help develop research opportunities for undergraduate students who will have an opportunity to work with scientists from around the world on a major astronomy project.

The grant provides students and faculty at Georgia Southern University and 13 other institutions access to the Arecibo Legacy Fast ALFA (ALFALFA) survey, an ongoing project that is expected to detect 20,000 galaxies out to a distance of 750 million light years.

‘This grant makes it possible for undergraduates to contribute to the scientific output of the ALFALFA extragalactic survey and follow-up studies,’ said Higdon, a professor of astronomy in the Department of Physics. ‘At the same time, the students will learn valuable lessons about the way that science collaboration functions through their interactions with their faculty mentors, their peers and the leaders of the project.’

Led by Cornell University astronomers Riccardo Giovanelli and Martha Haynes, the ALFALFA survey is based at the Arecibo Observatory in Puerto Rico. Using the world’s largest radio telescope, the survey is mapping a large part of the sky by using radio wavelengths that are appropriate for the detection of neutral hydrogen gas in other galaxies.

‘One of the main goals of the project is to discover low-mass, starless’ galaxies, which contain hydrogen gas, but have not yet formed stars,’ Higdon said. ‘The abundance of these dark’ galaxies, their characteristics and their locations are key clues to understanding how galaxies form and evolve throughout the universe.’

Higdon has been contributing to the ALFALFA survey by providing data on star formation, gas properties of merging galaxies, and the formation of tidal dwarf galaxies.

The ALFALFA survey is expected to take six or seven years to complete, and Higdon’s contributions to the project will grow through the NSF grant, which is titled ‘The Undergraduate ALFALFA Team.’

Higdon is working with Colgate University professor Tom Balonek and Union College professor Rebecca Koopman. Together, they are developing an undergraduate student program that includes four core components:

An annual group workshop at Arecibo that features observing sessions, lectures and group activities

Observing time at Arecibo for several groups of students per year

An annual summer research stipend program that will support seven students who will make a presentation at a national meeting

Funding to provide computers to each of the 14 consortium schools

As part of the grant, Higdon will also collaborate on curriculum and public outreach endeavors with Jose Alonso, the director of the Angel Ramos Foundation Visitors Center at Arecibo.

“This will result in publicly available activities written in both English and Spanish,” Higdon said. “The new material will be used at the Georgia Southern Planetarium.”

Two Georgia Southern University students are already involved in the ALFALFA survey. Physics majors Josh Davidson and Daniel Richey accompanied Higdon to Arecibo and gained experience with the radio telescope in January.

Georgia Southern University, a Carnegie Doctoral/Research University, offers more than 120 degree programs serving nearly 17,000 students. Through eight colleges, the University offers bachelor’s, master’s and doctoral degree programs built on more than a century of academic achievement. The University, one of Georgia’s largest, is a top choice of Georgia’s HOPE scholars and is recognized for its student-centered approach to education. Visit: [www.georgiasouthern.edu](http://www.georgiasouthern.edu) .