NASA Awards University $5.6M to Seek Planets that Could Support Life

UMass Lowell is preparing for its first balloon mission into the edge of space, thanks to a NASA grant worth nearly $5.6 million to build an instrument system able to detect planets orbiting other stars in our galaxy.

Led by physics Prof. Supriya Chakrabarti, the research team was awarded the five-year grant to develop and test an instrument system that could potentially detect young, Jupiter-size planets orbiting other stars in the Milky Way. The team’s ultimate goal is to discover Earth-like planets around sun-like stars capable of supporting life.

The instrument—dubbed the Planetary Imaging Concept Testbed Using a Recoverable Experiment Coronagraph, or PICTURE C—is scheduled to be launched on two separate flights, in the fall of 2017 and fall of 2019, from the Columbia Scientific Balloon Facility in Fort Sumner, N.M., where it would be carried aloft to the edge of the atmosphere using helium balloons several stories tall.

“PICTURE C will enable us to learn about the disk of dust, asteroids, planets and other debris orbiting the stars and gain a better understanding of the processes and dynamics that formed our own solar system,” explains Chakrabarti. “We have to fly the instrument to altitudes of about 120,000 feet to get above most of the Earth’s atmosphere. Atmospheric turbulence distorts and blurs our image of the stars.”

Five stars have been selected as test targets for the two missions, representing a wide range of brightness, age, distance and spectral type.

The mission will allow PICTURE C to test its coronagraph, a specialized optical imaging system coupled to with a 24-inch-diameter telescope designed to block out the direct light from the star so that faint objects very close to the star—such as planets, asteroids and interplanetary dust, which otherwise would be hidden in the star’s bright glare—can be studied in great detail.

The NASA grant represents the first major funding received by the university’s new seed center, called the Lowell Center for Space Science and Technology. Directed by Chakrabarti, the center will conduct research to study Earth, other Earth-like planets the Milky Way galaxy and the cosmos.

“The center aims to train the next generation of scientists and engineers through hands-on involvement in all phases of the mission, from instrument development to data analysis,” says Chakrabarti.
Learning with Purpose

Finding Safer Cleaning Methods for Home Health-care Workers

NIOSH Awards Quinn $2.4M Grant

As treatment of serious illnesses in the home increases, so does the risk of infections typically only seen in hospitals and rehabilitation centers. To fight these infections, more cleaning and disinfecting products with toxic chemicals are being used, increasing health problems like asthma for home health-care aides, nurses, patients and the community.

To find the right balance between fighting infections and using safer cleaning and disinfection methods and products, the National Institute for Occupational Safety and Health awarded Prof. Margaret Quinn of the Department of Work Environment a $2.4 million four-year grant.

A project of the Lowell Center for Sustainable Production, the Safe Home Care Cleaning and Disinfection research team will determine which infectious agents can be reduced by using different cleaning and disinfecting options. Researchers will evaluate the health effects of respiratory exposure from cleaning practices and identify safer, and possibly more effective methods of disinfecting patient homes—an enormous benefit to both patients and medical workers.

Researchers will find effective options that are safer for cleaning and disinfecting that prevent infections in home medical care. Photo by Earl Dotter.

Students Create a Solar-electric Taxi

Invention Is Sustainable and Pollution-Free

A team of electrical engineering and computer science students has designed, built and tested a prototype solar/electric-powered quadricycle, or taxi, that could ferry up to four passengers at speeds reaching 25 miles per hour without consuming a single drop of gas.

“This vehicle has the potential to replace both commercial taxis and personal cars,” says sophomore Alexander Gribov, who led the project. “It’s a cleaner, more sustainable way to commute.”

The students’ taxi uses a 150-watt solar panel to charge a 20 ampere-hour battery, which in turn runs the taxi’s DC motor.

“It can travel more than 20 miles on a full charge, making it ideal for commuting around campus and in crowded cities as well as transporting people in hotels, resorts, golf courses and between hospital wings,” says Gribov.

Gribov says even today’s electric cars are not completely free of pollution.

“The electricity used to recharge their batteries has to come from somewhere, and most people charge them using the commercial power grid, which burns fossil fuels to generate electricity,” he explains.

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The Boys from the ’Hood Do Good

Sacred Heart Neighborhood Friends Create Scholarship Endowment

Six boys who grew up in the 1960s in the modest Sacred Heart neighborhood of Lowell forged a decades-long bond of friendship. They also all went on to college at UMass Lowell and today are grateful for the memories and friendships as well as for the higher education that provided the foundation for their success in life.

In honor of those friendships, their hometown turf and their alma mater, they have created the Sacred Heart Neighborhood Endowed Scholarship at UMass Lowell to provide scholarships to kids from Lowell.

The friends—Jim Neary, Ray Crowe, John O’Donnell, Ken O’Neill, Matt McCafferty and Brian Sheehan, who along with UMass Lowell Vice Chancellor of University Relations Patricia McCafferty are the founding trustees of the fund—held a fundraiser in early November and surpassed all goals by raising $45,000 for scholarships for UMass Lowell students, bringing commitments to the endowment fund to $100,000.

“This was a unique initiative, led by a group of alumni who share my passion for this great institution, which honors a community and provides scholarships for deserving Lowell students,” says Chancellor Marty Meehan, who also grew up in the Sacred Heart neighborhood and earned a bachelor’s degree at UMass Lowell.

The first scholarship has been awarded to Ricardo Torres, who is the first person in his family to attend college. A Lowell High School graduate who is now a junior at UMass Lowell, he is studying Spanish and education and hopes to become a middle-school teacher.

Donations to support deserving students from Lowell are still being accepted through the UMass Lowell Alumni Office at 978-934-3140 or alumni.uml.edu/sacredheartfundraiser.

The Sacred Heart Neighborhood Reunion Fundraiser raised $45,000 for scholarships for UMass Lowell students—bringing commitments to the endowment fund to $100,000. Shown here are Chancellor Marty Meehan, third from left, with the first scholarship recipient, Ricardo Torres, center, and fund founders, from left, James Neary, Raymond Crowe, Kenneth O’Neill, Matthew McCafferty III, John O’Donnell and Brian Sheehan.
Chancellor Marty Meehan has been named to co-chair the education committee of Massachusetts governor-elect Charlie Baker’s transition team.

“I’m honored for this opportunity to work on Charlie Baker’s transition team to help develop ideas and strategy for enhancing education in Massachusetts. A strong education system, from preschool through higher education, is critical to the economic and social health of the Commonwealth,” says Meehan, who became chancellor in 2007. “I think part of the reason Baker’s team was interested in me was the work we’ve done at UMass Lowell.”

Over the past seven years, a dramatic transformation has reinvigorated the campus with increased enrollment, greater student success, new academic programs, greatly enhanced student life, global partnerships, new academic, student life and research buildings and a move to Division I athletics. These changes have prompted a surge of national and international attention and a rise in national rankings.

One issue Meehan is concerned about, he says, is ensuring that Massachusetts does a better job of steering students toward STEM (science, technology, engineering and math) fields even before they start thinking about college.

“We need to find a way to get students more interested in math and science, and to find a way to get them interested in becoming engineers,” he says.

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“Tsongas Event a Hit with Students, Employers

A record 190 companies representing a wide cross-section of industries attended UMass Lowell’s fall career fair, held for the first time at the Tsongas Center. More than 1,500 sharply dressed students and alumni showed up with résumés in hand.

“It was incredible to see so many students making great connections,” says Greg Denon, assistant dean of career development. “Our employers really value the relationship with UMass Lowell. They know there are a lot of talented, motivated students and graduates who can make an impact.”

Dean Sheehan ’10, a mold design engineer for Procter & Gamble, says UMass Lowell grads are highly valued in the job market because of their work ethic and academic success.

“I’m really impressed with them,” says Sheehan, who was attending his first Career Fair as a recruiter. “They’re asking the right questions.”

To help job-seekers navigate the bigger venue, Career Services created a mobile application through third-party provider Guidebook. A total of 1,163 attendees downloaded the app, which let them quickly search for opportunities that matched their desired fields, even pinning booth locations on an interactive map.

Assistant Dean Greg Denon and Dean Sheehan '10, a mold design engineer for Procter & Gamble, discuss students' career goals at the Tsongas event. Photo by Jack Tenti

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University Hosts First Division I Homecoming

Hawkeye Way Comes Alive with Students and Alumni

Thousands of past, present and future River Hawks (and Chiefs, Techs and Terriers) flocked to campus for River Hawk Homecoming 2014, the largest alumni event in the school’s history.

A full slate of activities welcomed alumni and their families back to campus including reunions, live music, family fun and athletic events. The highlight for many, Hawkeye Way at the Tsongas Center brought a carnival of fun to the weekend, entertaining thousands of community members before the River Hawks beat Michigan State on the ice.

“It’s nice to see the school doing things on such a high level and I’m happy to be part of it,” says Barry Chiorello ’76, who drove six hours from New Jersey for homecoming. He spent the weekend with his college roommate, one of several Lowell Technological Institute/University of Lowell friends he sees regularly.

Director of the Office of Alumni Relations Heather Makrez ’06, ’08 says Chiorello’s excitement was shared across campus.

“The weekend was the true Division I homecoming we hoped to give our alumni, faculty, staff and students,” says Makrez. “Our alumni host committee, with 47 alumni from 27 class years, really took ownership of the weekend and contributed to its energy and success.”

It wouldn’t be homecoming without UMass Lowell mascot Rowdy!