ASHLEY GREELEY

Hometown: Durham, N.C.
Program: Doctoral candidate in physics

When Ashley Greeley tells people that she helped build a satellite, they seem to be impressed.

"They always say, 'That sounds cool!'" Greeley said. "But seriously, it is really cool."

In July, the tiny Cube Satellite, or "CubeSat," developed by Greeley and her research team is scheduled to launch from New Zealand. The cube — measuring 10 cm by 10 cm by 30 cm — will be sent into orbit inside Earth's radiation belt (about 500 km above sea level). The satellite uses detectors calibrated by Greeley to measure protons and electrons in the radiation belt.

The team hopes to use the CubeSat data to determine if there is a relationship between those particles and the electromagnetic waves measured by other satellites. This research could shed light on the effects of space weather on Earth's magnetic fields, and also provide information on particle behaviors that can cause radio failures, degrade GPS signals, and even affect the health and safety of astronauts in space.

"Space weather is kind of a buzzword right now," Greeley said, "but I guess you could summarize my research by saying that I study space weather's effects on Earth's magnetic fields."

Greeley's work, sponsored by NASA, is in a lab at the Goddard Space Flight Center, about 25 minutes from Catholic University. She landed the position through an internship. After working there for a year, she was encouraged by her mentor, Shrikanth Kanekal, a part-time faculty member at the University, to stay on as a graduate student.

"He said that if I went to a local school, I could keep working in the lab and take classes at the same time," Greeley said. "It turns out that Catholic University has a very close relationship with the solar physics lab at Goddard, so everything just sort of fell into place."

A second close relationship developed on the job when Greeley met her husband.

"We were on the same rec softball team — yes, Goddard has a softball team. It's the nerd softball team! An engineer in my lab was like, 'We really need women on our team.' So I joined and met my husband."