

## **Student may have discovered rare type of galaxy**

2012-06-04



A Queen's University PhD student may have identified a new, extremely rare type of galaxy that helps give insight into the way these systems are formed and evolve.

Research by PhD student Karen Lee-Waddell (Physics, Engineering Physics and Astronomy), done with data from radio telescopes in Puerto Rico and India, appears to show a tidal dwarf galaxy (TDG) located 74 million light years away from Earth. TDGs are produced when galaxies collide and galactic material is pulled away to form a smaller galaxy. Scientists have only confirmed a few TDGs ever, while another 20 galaxies are suspected of being TDGs.

"It's not every day you discover a rare galaxy," says Ms. Lee-Waddell. "What makes it special is that it's basically a baby galaxy. These galaxies give insight into the dynamics and processes that drive galaxy formation and evolution in the universe."

The galaxy, initially spotted in sensitive but low-resolution data from the Arecibo Legacy Fast ALFA (ALFALFA) survey, is called AGC208457 and has a mass about 300 million times the sun. It has all the hallmarks of a TDG. It is located at the high-density tip of a gas-rich tidal stream of material, has sufficient mass to be self-gravitating, and contains little dark matter.

Ms Lee-Waddell now plans follow up research to confirm if AGC208457 truly is a TDG. She, with the help of researchers from the Royal Military College and members of the ALFALFA team, made the initial discovery from a series of observations in 2009 and 2010.

Ms. Lee-Waddell will present her findings at the [Canadian Astronomical Society \(CASCA\) conference](#) in Calgary (June 5-7). Her paper on the discovery will soon appear in Monthly Notices of the Royal Astronomical Society.

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