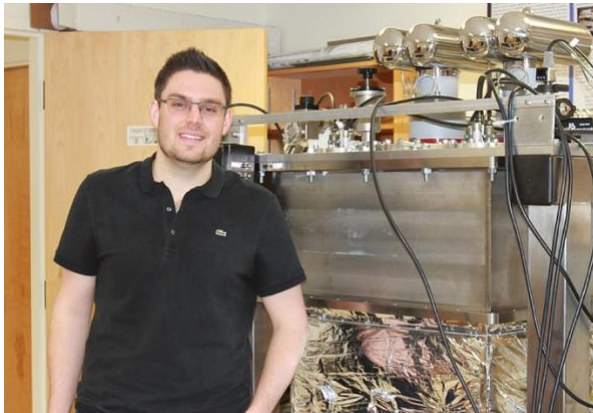


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## U of L grad student presents at prestigious photonics conference

Only in the second semester of his master's program with University of Lethbridge astrophysicist Dr. David Naylor, Adam Christiansen was selected to present at SPIE Photonics West, the world's largest photonics innovation conference.



"I was excited when I found out I'd been chosen to present," says Christiansen. "It was nice to know that I was at least doing something that other people considered to be on the right track and worthy of a presentation. I was nervous because everybody there knows a lot, but it ended up going quite well."

Photonics is the science of light generation, detection and manipulation, commonly involving the application of lasers and fibre optics. Popular photonics research areas include telecommunications, medicine, military and defence, manufacturing and aerospace.

"After four-plus months into his program, it's exceptional to win a coveted oral spot at this conference," says Naylor. "Most student presentations are given as posters and Adam was the only student to give a talk in his session."

In addition, SPIE (Society of Photographic Instrumentation Engineers) awarded Christiansen with an MKS Instruments Research Excellence Travel Award, a grant that allowed him to attend the recent conference in San Francisco.

The conference draws about 25,000 attendees from all over the world. In addition to technology exhibits that feature the latest in lasers, optics and electronics, participants attend scientific sessions on topics ranging from physics to neuroscience.

Christiansen, a Lethbridge-born, Chinook High School graduate who completed an undergraduate degree in computer and software engineering at the University of Alberta, is

working on a component of SAFARI, a far infrared spectrometer and the largest instrument on SPICA (Space Infrared Telescope for Cosmology and Astrophysics). SPICA, a satellite that will help scientists understand how galaxies form and evolve, is one of three finalists in the European Space Agency's M5 call for mission proposals.

The SPICA/SAFARI mission is being led by SRON, the Netherlands Institute for Space Research, in partnership with the Canadian Space Agency (CSA) and the Japan Aerospace Exploration Agency (JAXA). As a CSA lab, the U of L's astrophysics lab is a unique facility in Canada that is contributing to and doing testing for SAFARI.

"My research focuses on a subsystem of SAFARI that involves the precise measurement and control of its moving mirror," says Christiansen. "The challenge with this is that you need to be able to do it in space under cryogenic temperatures, that is 4 Kelvin (-269 C). This kind of thing has been done before in the laboratory but it's not as straightforward in space."

The U of L's cryogenic test facility attempts to replicate the space environment as closely as possible, including the temperature, vacuum environment and realistic vibrations that would be experienced on a spacecraft.

"There have been plenty of previous space missions like this that have had to do this kind of measurement and control and they used various types of sensors to do that—resistive, capacitive and inductive, for example," says Christiansen. "But never before has a laser-interferometer system like the one that we're proposing been used in a space application. So, we're trying to show that this system would be beneficial to use in space, that it's well suited and can meet the requirements."

This news release can be found online at [SPIE Photonics West](#).

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