

## **New faces: Medical physics prof eager to make life-saving devices**

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*Editor's note: One of the university's strategic priorities is to recruit and retain the best faculty and staff. This is part of series of articles about new faculty members joining UWindsor this year*

[Steven Rehse](#) finds it astonishing that in a modern age when science can accomplish so many miracles, there are no simple, fast and efficient methods to detect the presence of bacteria and prevent such outbreaks as the Walkerton water tragedy or the Maple Leaf Foods listeria spread.

"How is it we can manipulate atoms, yet still live in a world where the predominant way of testing to see if a piece of food has bacteria is to eat it and get sick?" the new assistant physics professor asked.

Dr. Rehse, who joined the university in May to help lead the [physics department's](#) new and quickly growing stream in [medical physics](#), is an expert in laser detection technology. He hopes his applied research will result in new devices that can be used in a variety of settings from hospitals to water treatment facilities and food processing plants—wherever there's a need to quickly detect the presence of harmful bacteria.

"I'm interested in making technology that's going to save lives now," said Rehse, who earned master's and doctoral degrees from Colorado State University. "The new frontier of physics is in the overlap with the biological world. How does physics overlap with health sciences? I just think it's the most exciting area of physics."

Rehse's area of expertise is in laser induced breakdown spectroscopy. Simply, it involves firing a laser at a material's surface and analyzing the content of light that's emitted by the tiny explosion it causes.

"The light that's emitted is a like a bar code that we can read," said Rehse, who added that it's the same technology to be used to get a better picture of surface materials on the Red Planet this fall when NASA launches the [Mars Science Laboratory](#).

Originally from the northern Wisconsin town of Tomahawk, about an hour from Green Bay—he remains a Packers fan—Rehse moved west in 1994 after earning an undergraduate degree from Michigan Tech. He worked at the [Los Alamos National Laboratory](#), a national defense facility, on projects to use laser scanning technology to monitor the core of a nuclear rocket for an eventually scuttled manned mission to Mars, and using long-distance lasers to scan the material from factory smoke stacks to help intelligence gatherers determine whether those plants are manufacturing weapons.

While in graduate school he attended a conference at the University of Western Ontario where he met the people who would eventually offer him a post-doctoral position, as well as the woman who would become his wife. Genevieve Isshak, a graduate of UWindsor's [School of Social Work](#), was working at a shelter for abused women in London and married Rehse in 2003.

Rehse was hired to a faculty position at Wayne State University in 2005 and the couple moved to LaSalle, allowing Isshak the opportunity to come back to Windsor and complete a master's degree through the MSW for Working Professionals Off-Campus Program that's offered through the [Centre for Executive Professional Education](#) and the School of Social Work. She's now the clinical director of residential and outreach services at Hiatus House.

Engaging and enthusiastic, Rehse says he's excited to get moving on his teaching and biomedical research and sees plenty of opportunity to collaborate with colleagues from the [Schulich School of Medicine and Dentistry Windsor Program](#), as well as those in the new [Masters of Medical Biotechnology](#) program, recently endorsed by the university's [Strategic Priority Fund](#).



*Physics professor Steve Rehse shines a laser pointer on a stuffed animal version of e-coli that a friend gave him for a gag gift. An applied scientist, Rehse wants to develop devices that would rely on laser technology to identify potentially harmful bacteria.*