



# research fellowship helps quantum hacker secure our future

When you think of a hacker, the image of a farm girl from Minnesota probably doesn't come to mind.

"I really enjoyed my high school math courses, but there wasn't really any application of the material," says Sarah Kaiser, a PhD student at the Institute for Quantum Computing (IQC). "Once I took my first physics course as an undergrad, I was hooked! I particularly liked light, and using lasers in the lab to play with it. From there the question was, 'What's the coolest thing I can think of to do with these tools?'"

As an undergrad, Sarah interned at Caltech and the National Institute for Standards and Technology. "I knew I really wanted to continue in quantum information. I'd heard about IQC, and once I looked into it, I knew it was my top choice for grad school."

Sarah's research specialty is quantum cryptography. "Essentially, it's about finding new ways to guarantee information security in the future." Using lasers and other tools, Sarah takes new 'secure' systems and demonstrates how the security can be compromised. "Companies and researchers are building devices they hope can securely convey information, but those devices have not been rigorously tested. Through my research, I hope to contribute to setting the standards that future devices will be tested against."

Sarah is a 2012 recipient of the Mike and Ophelia Lazaridis Fellowship. The award brings some of the most promising quantum information researchers in the world, like Sarah, here to Waterloo. "The ability to devote one hundred per cent of my attention to my research without worrying about finding other sources of funding is liberating. Now, my only nightmares involve equipment that I accidentally break, not where my next paycheque is coming from. I am grateful for the opportunity to be a part of this exciting new area of research and hope I can make a valuable contribution to the future of quantum systems. Thank you, Mike and Ophelia Lazaridis, for your enormous generosity in funding this fellowship."

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- SARAH KAISER, PHD STUDENT, IQC



## the year in review

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(gifts received May 1, 2012 to April 30, 2013)

Buildings	\$26.2 M
Research	\$12.1 M
Programs	\$8.4 M
Scholarships	\$7.8 M
Chairs & Professorships	\$2.6 M
<b>TOTAL</b>	<b>\$57.1 M</b>

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Arts	\$5.6 M
Engineering	\$8 M
Environment	\$3 M
Math	\$3.4 M
Science	\$3.4 M
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University-wide projects	\$26.2 M
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### SOURCE OF GIFTS

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