

## NEWS RELEASE



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### Laurier researcher recognized for work on quantum physics

WATERLOO – Laurier researcher Shohini Ghose received a prestigious Sera Bangali award July 20 in West Bengal (India) for her contributions to the field of science, which include her work on a ground-breaking study that will further the field of quantum physics.

The Sera Bangali awards honour people of Bengali origin who have made significant contributions in the fields of music, film, business, science, sports, art, or public life, as well as an overall lifetime achievement award. Previous winners include Muhammad Yunus, an economist and Nobel Peace Prize winner, and Pranab Mukherjee, the finance minister of India.

“I was very honoured that they considered me for this award,” said Ghose, an associate professor in Laurier’s Department of Physics and Computer Science. “I’m already very passionate about my work, and getting this award just reinforces my commitment to this type of research.”

Ghose is an expert in quantum chaos. She designed a study with Poul Jessen, a professor of Optical Sciences at the University of Arizona, which provided direct evidence of a connection between the very different worlds of quantum mechanics and classical chaos. Previously, this connection had never been directly observed at the atomic level.

By using state-of-the-art equipment in Jessen’s lab, the team was able to observe the impact of chaos – or unpredictability – on atoms. It essentially demonstrates the idea that small changes can have a huge effect.

“Quantum chaos experiments are difficult,” said Ghose. “It’s only in the last few years that we’ve been able to do clean experiments. There is a lot of experimental noise that can wash out any of the measurements that you want to observe.”

Their study also provided the first-ever look at a connection between entanglement and chaos. Entanglement suggests that atoms can be connected in ways that aren’t possible in the macroscopic classical world around us.

All of these results are useful to the creation of the quantum computer.

Ghose, Jessen and three graduate students co-authored an article on their study called “Quantum Signatures of Chaos in a Kicked Top.” It was published in the prestigious journal *Nature* in 2009.

The Sera Bangali awards were established in 2006, and are sponsored by STAR Ananda, Bengal’s leading news channel.