The H.L.Welsh Lectures in Physics 2011

University of Toronto

April 13 & 14

Deborah Jin

JILA & University of Colorado

7:00pm Wednesday, April 13
Earth Sciences Centre, ES 1050
33 Willcocks Street
(Refreshments in the Lobby afterwards)

Fun with Ultracold Atoms

Experiments with ultracold gases are among the coldest experiments in the world. I will discuss experiments where we are exploring quantum behavior in a gas of atoms cooled to temperatures near absolute zero. This talk will touch upon topics such as temperature, quantum mechanics, and superconductivity.

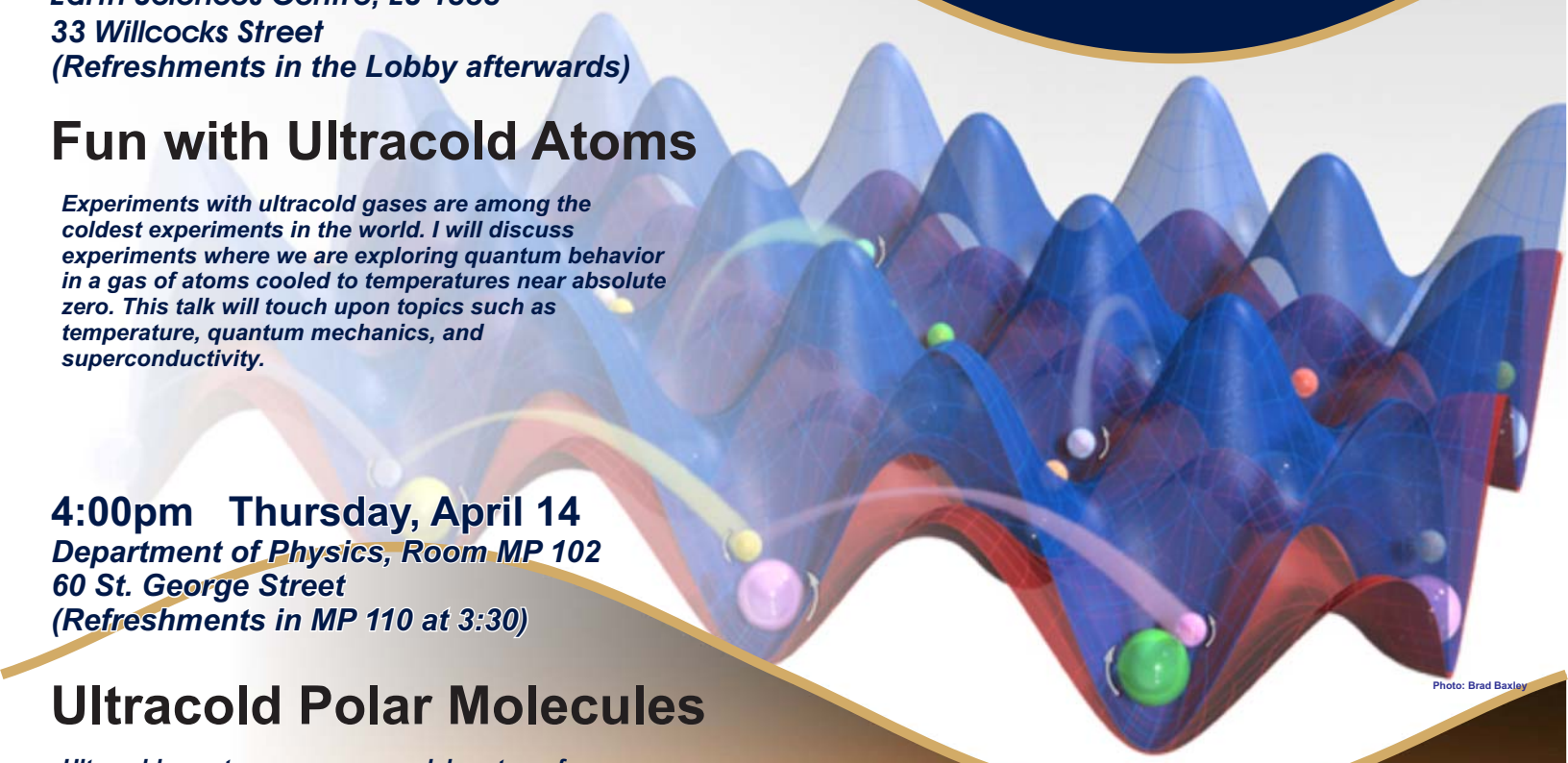

Photo: Brad Baxley

4:00pm Thursday, April 14
Department of Physics, Room MP 102
60 St. George Street
(Refreshments in MP 110 at 3:30)

Ultracold Polar Molecules

Ultracold quantum gases are model systems for studying many-body quantum physics. For example, superfluidity in ultracold Fermi gases of atoms realizes an electrically neutral analog of superconductivity. Recently, enormous progress has been made toward the goal of creating a new type of quantum gas where the constituent particles are polar molecules rather than atoms. In addition to new internal degrees of freedom of the particles, polar molecules introduce the possibility of long-range dipole-dipole interactions, which make the system fundamentally different from atom gases, which have short-range, or contact, interactions. I will discuss recent experimental work on a trapped gas of ultracold fermionic polar molecules.

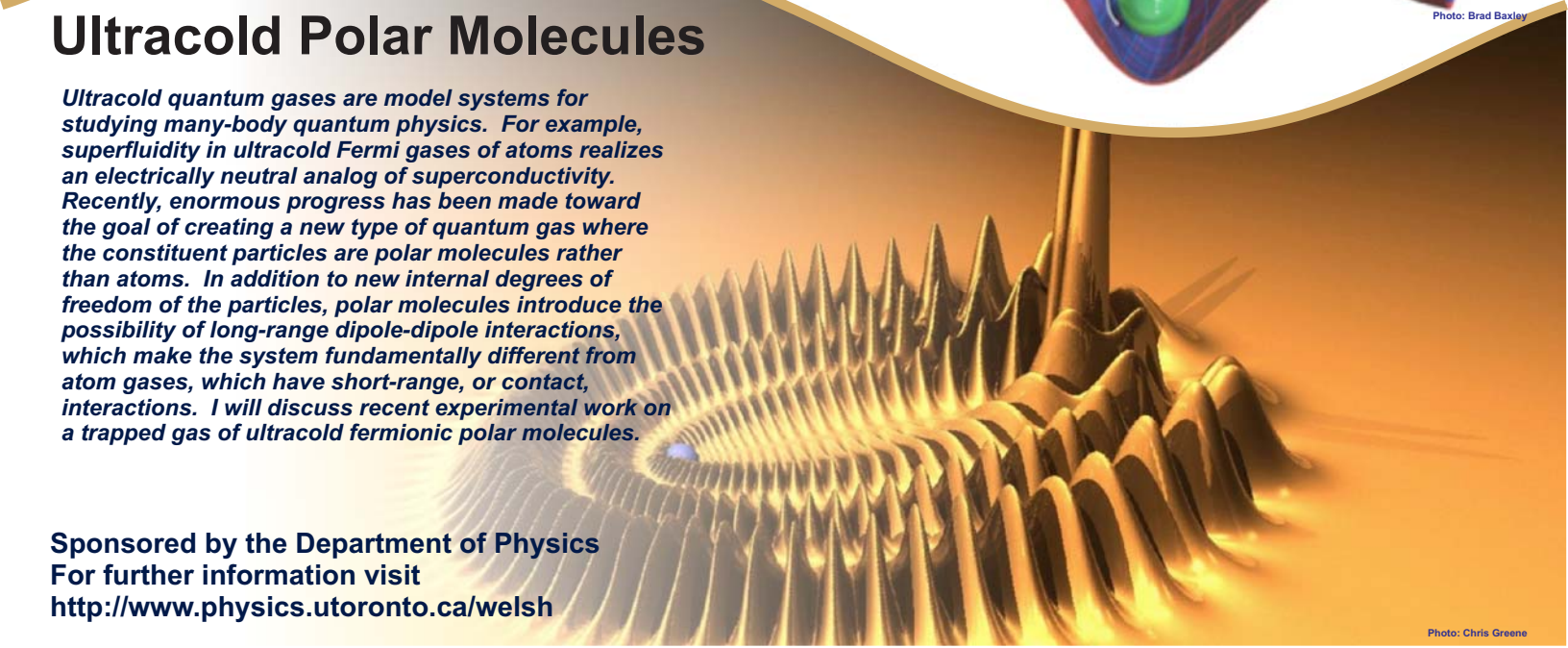

Photo: Chris Greene

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