



Chemical & Physical Sciences  
UNIVERSITY OF TORONTO  
MISSISSAUGA

## COLLOQUIUM

TUESDAY, JANUARY 31<sup>ST</sup>, 2012  
12:00 P.M. (**SHARP**) – 1:00 P.M.  
**CCT 2150**

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### **Dr. John Dutcher**

*Department of Physics, University of Guelph*

### **“EFFECT OF ANTIMICROBIAL AGENTS ON MIN D PROTEIN OSCILLATIONS IN E. COLI BACTERIAL CELLS”**

The pole-to-pole oscillation of MinD proteins in *E. coli* bacterial cells determines the location of the division septum, and is integral to healthy cell division. It has been shown previously that the MinD oscillation period is approximately 40 s for healthy cells but is strongly dependant on environmental factors such as temperature, which may place stress on the cell. We use a strain of *E. coli* in which the MinD proteins are tagged with green fluorescent protein (GFP), allowing fluorescence visualization of the MinD oscillation. We use high-resolution total internal reflection fluorescence (TIRF) microscopy and a custom, temperature controlled flow cell to observe the effect of exposure to antimicrobial agents on the MinD oscillation period and, more generally, to analyze the time variation of the spatial distribution of the MinD proteins within the cells. These measurements provide insight into the mechanism of antimicrobial action.