



Chemical & Physical Sciences  
UNIVERSITY OF TORONTO  
MISSISSAUGA

## COLLOQUIUM

TUESDAY, MARCH 5<sup>TH</sup>, 2013  
12:00 P.M. (**SHARP**) – 1:00 P.M.  
**IB270**

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# Jennifer Ross

*University of Massachusetts Amherst*

## “Reconstructing the Cell”

Cells are dynamic, non-equilibrium systems that can rearrange their internal structure to divide, differentiate, or move. Correctly positioning microtubules is essential for cell function, and incorrect placement can result in disease. In my lab, we are interested in reconstituting the self-organized patterns that cells can create using minimal sets of proteins. To that end, we have performed a series of experiments using simple filament gliding assays powered by kinesin motor proteins to drive self-organization. We found that high concentrations of filaments result in looping, but no cellular patterns. To achieve cellular patterns, we repeated the work using microtubule cross-linking proteins. These experiments have all been performed by undergraduate researchers in my laboratory.