

THE MATHEMATICS DEPARTMENT PRESENTS

A MATHEMATICS COLLOQUIUM

THURSDAY, February 26, 2009

BOND HALL 217

4:00 pm

**Title: Does Entropy Really Tend to Increase?
Confounding Conventional Wisdom**

Speaker: Seth Zimmerman

Abstract: Conventional wisdom holds that “entropy tends to increase.” This is often just an ironic comment on the growing disorganization in our lives, but when printed in a physics text or a book for the general public it can be quite misleading-sometimes blatantly wrong. We’ll look at the most common example of such a misstatement, the two-chambered thought experiment. By generalizing the experiment we’ll attempt to clarify a small but significant subtlety among the many that have intrigued physicists since Boltzmann’s first investigation. We won’t presume to resolve any of the deeper issues of entropy, but we’ll offer some surprises, and a new tool for entropy research-the symplectic structure in k dimensions. This may intrigue mathematicians for its own sake, as well as yield some implications for cosmology. While primarily directed to faculty and graduate students, the presentation will be reasonably accessible to upper division students familiar with binomials.

Refreshments will precede the talk at 3:30pm in Bond Hall 300.