



# Fall 2013 G. Milton Wing Lecture Series

with **Ken Golden**

Department of Mathematics  
University of Utah

## Mathematics and the Melting Polar Ice Caps

Thursday, September 26 • 5 p.m.  
Hutchison Hall, Hubbell Auditorium

In September 2012, the area of the Arctic Ocean covered by sea ice reached its lowest level ever recorded in more than three decades of satellite measurements. In fact, compared to the 1980s and 1990s, this represents a loss of more than half of the summer Arctic sea ice pack. While global climate models generally predict sea ice declines over the 21st century, the precipitous losses observed so far have significantly outpaced most projections.

Golden will discuss how mathematical models of composite materials and statistical physics are being used to study key sea ice properties and advance how sea ice is represented in climate models. This work is helping to improve projections of the fate of Earth's ice packs and the response of polar ecosystems. In addition, an exciting video from a 2012 Antarctic expedition where sea ice properties were measured will be shown.

## Homogenization for Sea Ice

Friday, September 27 • 1 p.m.  
Lattimore Hall, Room 201

The mathematics and physics behind the lecture on "Mathematics and the Melting Polar Ice Caps" will be explored in more detail. In particular, Golden will show how topics such as diffusion processes, percolation theory, dynamical systems, statistical mechanics, and random matrix theory are being used in the study of sea ice and its role in the climate system.

Lecture Series Sponsored by the Department of Mathematics

