

1106-AC-1569 **Kenneth M. Golden*** (golden@math.utah.edu), University of Utah, Department of Mathematics, 155 S 1400 E, RM 233, Salt Lake City, UT 84112-0090. *Modeling the Melt: What Math Tells Us About the Shrinking Polar Ice Caps.*

The precipitous loss of Arctic sea ice has far outpaced expert predictions. In this lecture we will explore the mathematical underpinnings of this mystery, and show how we are using the mathematics of multiscale composites and statistical physics to study key sea ice processes. This work is helping to better represent sea ice in climate models, and improve projections of the fate of Earth's ice packs as well as the response of polar ecosystems. We will conclude with a short video from a 2012 Antarctic expedition where sea ice properties were measured. (Received September 14, 2014)