1133-82-117 **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. *Arctic melt ponds, fractal geometry, and Anderson transitions.*

Melt ponds on the surface of Arctic sea ice in late spring and summer determine sea ice albedo or reflectance, a key parameter in climate modeling. As the ponds grow and coalesce, forming large scale connected structures, their fractal dimension undergoes a transition from 1 to about 2, around a critical length scale of 100 square meters in area. As the ponds evolve they take complex, self-similar shapes with boundaries resembling space-filling curves. In studies of two phase composites, such as the ice-water surface of melting sea ice, we have found unexpected behavior in the eigenvalues and eigenvectors of a random matrix governing classical transport in these media as a connectedness threshold is approached. They display strikingly similar behavior to what is observed in Anderson transitions in condensed matter, optics, acoustics, and water waves, with a transition to universal Wigner-Dyson eigenvalue statistics and a localization transition. I will discuss these findings as well as models we are developing to investigate melt pond evolution, such as an Ising model. (Received July 18, 2017)