1142-35-87 **Matthew Badger*** (matthew.badger@uconn.edu). *Free boundary regularity for harmonic measure on multi-phase configurations.*

In free boundary regularity problems for harmonic measure, one seeks to determine the extent to which analytic regularity of the harmonic measure of a domain (with respect to surface measure on the boundary or harmonic measure of a complementary domain) controls the geometric regularity of the boundary of the domain. Work over the last twenty years by several authors have revealed a rich landscape of results in both the one-phase and two-phase settings. In this talk, I will pose a multi-phase extension of Kenig and Toro's two-phase free boundary regularity problem and present our initial findings about blowups of harmonic measure on multi-phase NTA configurations. This is joint work with Murat Akman. (Received August 30, 2018)