1117-37-138 **Tamara Kucherenko** (tkucherenko@ccny.cuny.edu), New York, NY 10031, and **Christian Wolf*** (cwolf@ccny.cuny.edu), New York, NY 10031. *Zero Temperature Measures on the Boundary of Rotation Sets.*

Zero-temperature measures are limits of equilibrium states when the temperature goes to zero. They play a fundamental role in statistical physics. In this talk we consider rotation sets $Rot(\Phi)$ associated with a continuous dynamical system $f : X \to X$ on a compact metric space X and a m-dimensional continuous potential $\Phi = (\phi_1, \cdots, \phi_m) : X \to R^m$. We study the question for which boundary values w of $Rot(\Phi)$ one can realize an entropy maximizing measure in the rotation class of w as a zero-temperature measure associated with a certain linear combination of Φ. We show that at an exposed point $w \in \partial Rot(\Phi)$ there always exists a weak zero-temperature measure that maximizes entropy in its rotation class. We also construct examples of rotation sets (in any dimension m) that have exposed boundary points without a strong zero-temperature measure in its rotation class. Finally, we consider non-exposed points and show that the following two phenomena exist: a) boundary points without an associated weak zero-temperature measure; b) boundary points with a unique zero-temperature measure that is not ergodic. This is a joint work with Tamara Kucherenko. (Received January 10, 2016)