1145-05-1028 **Caleb Ji*** (`caleb.ji@wustl.edu`). *Distinguishing numbers and generalizations.*

The distinguishing number of a graph was introduced by Albertson and Collins as a measure of the symmetry contained in its automorphism group. Tymoczko extended this definition to faithful group actions on sets. In this talk, we first show a solution to an open problem on distinguishing numbers. We then generalize this notion further to distinguishing partitions, which naturally leads to a new partially ordered set on partitions. We show that the dominance order is a refinement of this order and raise a few open questions regarding its properties. We then introduce the distinguishing symmetric function and raise a question regarding the Schur-positivity of this polynomial for automorphism groups of graphs. We prove some special cases and outline a possible approach which relates distinguishing labelings of graphs to partitions of Cartesian powers of the vertex set. (Received September 18, 2018)