Connecting the Roller Boundary and the Poisson-Furstenberg Boundary

Talia Fernos
University of North Carolina, Greensboro

The Poisson-Furstenberg Boundary for a random walk on a group is an important object and is frequently employed in the study of rigidity. We generalize work of Nevo-Sageev and show that the Roller Boundary of a CAT(0) cube complex is the Poisson-Furstenberg Boundary for a general class of groups (and their random walks). This includes finitely generated groups which admit a proper non-elementary action on a finite dimensional CAT(0) cube complex (that is not assumed to be locally compact). Little measure theory is used in our proof. Rather, a careful analysis of intervals in the Roller compactifiation is employed. We will begin the talk with an introduction to the Roller compactifiation and the Roller Boundary.