

1112-57-536

**Abhijit Champanerkar\*** ([abhijit@math.csi.cuny.edu](mailto:abhijit@math.csi.cuny.edu)), Department of Mathematics, College of Staten Island, CUNY, 2800 Victory Boulevard, Staten Island, NY 10314, **Ilya Kofman** ([ikofman@math.csi.cuny.edu](mailto:ikofman@math.csi.cuny.edu)), Department of Mathematics, College of Staten Island, CUNY, 2800 Victory Boulevard, Staten Island, NY 10314, and **Jessica Purcell**, School of Mathematics, 1 Einstein Dr, Princeton, NJ 08540. *Density spectra for knots.*

In this talk we will explore the interactions between knot theory, hyperbolic geometry and graph theory. We study two natural quantities: the volume density defined as the hyperbolic volume of a knot complement per crossing number, a geometric invariant, and the determinant density defined similarly, a diagrammatic invariant. We will talk about recently discovered interesting relationships between the spectra of volume and determinant densities, and explore natural questions and conjectures motivated by this study. The techniques used in answering some of these questions involve an interesting blend of graph theory, dimer models and circle packings, in addition to geometric techniques such as polyhedral decomposition and volume bounds. This is joint work with Ilya Kofman and Jessica Purcell. (Received August 11, 2015)