1123-54-189 **David A. B. Hyde*** (dabh@stanford.edu), 353 Serra Mall, Room 205, Stanford, CA 94305.

Quantifying the Complexity of Ideal Knots.

In this talk, we review a recent paper (Hyde et al. 2015) that presents multiple ways to measure the complexity of ideal knots. We use disk matrices to define "knotting fingerprints" that provide fine-grained insights into the local knotting structure of ideal knots. From this fine structure and an analysis of the associated planar graph, one can define a measure of knot complexity using the number of independent unknotting pathways from the global knot type as the knot is trimmed progressively to a short arc unknot. A specialization of the Cheeger constant provides another measure of complexity as a measure of constraint on these independent unknotting pathways. Furthermore, the structure of the knotting fingerprint supports a comparison of the tight knot pathways to the unconstrained unknotting pathways of comparable length. (Received August 26, 2016)