MATH-IMS Joint Pure Mathematics Colloquium Series
The Chinese University of Hong Kong

This Colloquium Series in Pure Mathematics is organized by the Department of Mathematics and the Institute of Mathematical Sciences (IMS) at The Chinese University of Hong Kong. The series focuses on all areas of pure mathematics together with theoretical developments and applications.

Date: January 28, 2022 (Friday)
Time: 10:00-11:00AM (Hong Kong Time)
Zoom Link: https://cuhk.zoom.us/j/98846779826

Unknotting number and satellites

Speaker: Professor Jennifer Hom
Georgia Institute of Technology

Abstract: The unknotting number of a knot is the minimum number of crossing changes needed to untie the knot. It is one of the simplest knot invariants to define, yet remains notoriously difficult to compute. We will survey some basic knot theory invariants and constructions, including the satellite knot construction, a straightforward way to build new families of knots. We will give a lower bound on the unknotting number of certain satellites using knot Floer homology. This is joint work in progress with Tye Lidman and JungHwan Park.

Bio: Prof. Hom is an Associate Professor in the School of Mathematics at Georgia Tech. She received her B.S. in Applied Physics in Columbia University and her Ph.D. at University of Pennsylvania in 2011, under the supervision of Prof. Paul Melvin. Before joining Georgia Tech, Prof. Hom was a Ritt Assistant Professor at Columbia University, a visitor of Simons Center for Geometry and Physics at Stony Brook, and a member of the Institute for Advanced Study at Princeton. Prof. Hom's research focuses on applications of Heegaard Floer homology to low-dimensional topology. Her important contributions in these areas are widely recognized internationally and she was awarded the Sloan Fellowship in 2015. Prof. Hom is also an invited speaker in the Topology section of ICM 2022.