Colloquium

University of Notre Dame
Department of Mathematics

Speaker: Padmavathi Srinivasan

University of Georgia

Will give a lecture entitled
Degenerations of curves, rational points, and arithmetic topology

Date: Friday, January 7, 2022
Time: 4:00 PM
Location: 127 Hayes-Healy Hall

Zoom URL: notredame.zoom.us/j/98144075513?
pwd=dnFuMVRscVE1WmZFTS9rWW5KTWEvZz09 Meeting ID: 981 4407 5513 Passcode:
680122

Departmental Tea: Tea in Room 257 (lounge in Hurley Hall) at 3:30 p.m.

Abstract:

Number theory has a rich history of long standing open problems that are fairly easy to state, but are notoriously difficult to answer. The most famous among these is Fermat's Last Theorem, whose solution spurred the development of many technical tools in use today. The quest to find explicit methods to solve other Diophantine equations continues. A recent method that has had spectacular success in finding rational points on curves that were previously out of reach is the "Quadratic Chabauty" method. The explicit implementation of the Quadratic Chabauty method is a formidable computational challenge. This talk will feature a simplification of the Quadratic Chabauty method using geometric ideas, developed jointly with Besser and Mueller. Using ideas inspired by topology, we will outline new results (joint with Li, Litt and Salter) that show that most curves have no rational solutions at all, guided by Grothendieck's Section Conjecture. The key is to study degenerations in families of curves. The talk will close with various natural ways of measuring degenerations in families of curves (such as the conductor and the discriminant) and their interrelationship.

Padmavathi Srinivasan - University of Georgia