



Pacific Institute *for the*
Mathematical Sciences

Emergent Research: The PIMS Postdoctoral Fellow Seminar

February 3, 2021

**9:30 AM Pacific / 10:30 AM Mountain / 11:30 AM Central
Zoom**



PIMS is pleased to present an ongoing lecture series featuring our Postdoctoral Fellows! Every three weeks, you will have the opportunity to connect with emerging research in the mathematical sciences from a PIMS Postdoctoral Fellow. PIMS PDFs are amongst the top young researchers in Canada, and this is an excellent opportunity to learn about them, and their work.



Debanjana Kundu, PhD

PIMS Postdoctoral Fellow - UBC

Iwasawa Theory of (Fine) Selmer Groups

Abstract: The congruent number problem is the following question. Consider a right-angled triangle; what natural numbers can arise from its area, all of whose sides have lengths that are rational numbers? Though this question is easy to frame, it is related to a Clay millennium problem, the Birch and Swinnerton-Dyer (BSD) conjecture for elliptic curves. This conjecture is known in a few special cases, and Iwasawa theory provides a framework for attacking this conjecture in a systematic way. Though we are still very far off from resolving the BSD conjecture, Iwasawa theory itself has been growing as a subject.

In my talk, I will introduce the broad subject of Iwasawa theory; and spend considerable time discussing the Iwasawa theory of elliptic curves. Towards the end, I will briefly talk about my research on growth of fine Selmer groups in towers of number fields.

Bio: I am Debanjana Kundu, a PIMS Postdoctoral Fellow at UBC, Vancouver working with Prof. Sujatha Ramdurai. I earned my PhD from the University of Toronto in June 2020. I am interested in number theory, in particular, Iwasawa Theory. Other areas of number theory that interest me include arithmetic statistics and Langlands' Beyond Endoscopy. When not math-ing, I love to read fiction!

REGISTRATION: <https://www.pims.math.ca/seminars/PIMSPDF>