

Colloquium

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Iwasawa Theory and the Birch and Swinnerton-Dyer Conjecture

Speaker: Dr. Antonio Lei

University of Ottawa

Abstract

The Birch and Swinnerton-Dyer Conjecture predicts that the set of rational points on an elliptic curve can be described by an explicit analytic function attached to the curve. This conjecture has only been solved in certain special cases and is still one of the central problems studied by number theorists many decades after it has been first formulated. In this talk, I will

- Give an overview of the Birch and Swinnerton-Dyer Conjecture.
- Wander into the world of Iwasawa Theory, which is a branch of Number Theory where we study arithmetic objects by deformation.
- Discuss how Iwasawa Theory can be used in the study of the Birch and Swinnerton-Dyer Conjecture.

Short Bio

Antonio Lei received his PhD from the University of Cambridge in 2010. Afterward, he held an ARC postdoctoral fellowship at Monash University, Australia (2010-2014) and a CRM-ISM postdoctoral fellowship at McGill University, Canada (2011-2014). Subsequently, he became a faculty member at Laval University in Quebec City from 2014 until 2022, when he moved to the University of Ottawa. During the academic year 2022-2023, he served as a distinguished visiting professor at University College Dublin, Ireland and was also a research member at MSRI-SLMATH in Berkeley. His research focuses on Number Theory, employing techniques from Algebra, Arithmetic Geometry and Non-Archimedean Analysis. Specifically, he investigates arithmetic properties of elliptic curves, modular forms, field extensions and graph coverings.

Date: Tuesday, April 30th, 2024

Time: 3:00PM-4:00PM CT

Room: EMAGC 1.206

Zoom Link: <https://utrgv.zoom.us/j/88338914912>

For further information or for special accommodations, please contact Dr. Alexey Glazyrin via email alexey.glazyrin@utrgv.edu and Dr. Debanjana Kundu via email debanjana.kundu@utrgv.edu.