

## UBC Number Theory Seminar: October 20, 2021

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**Speaker:** Soumya Sankar (Ohio State University)

**Title:** Counting elliptic curves with a rational  $N$ -isogeny

**Abstract:** The classical problem of counting elliptic curves with a rational  $N$ -isogeny can be phrased in terms of counting rational points on certain moduli stacks of elliptic curves. Counting points on stacks poses various challenges, and I will discuss these along with a few ways to overcome them. I will also talk about the theory of heights on stacks developed in recent work of Ellenberg, Satriano and Zureick-Brown and use it to count elliptic curves with an  $N$ -isogeny for certain  $N$ . The talk assumes no prior knowledge of stacks and is based on joint work with Brandon Boggess.