Algebra Seminar

Local data of elliptic curves under quadratic twists and isogeny

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Abstract: For a minimal proper regular model of a rational elliptic curve E at a prime p, we can compute the local data at p, which includes the special fiber of the minimal model (i.e., Néron type), the exponent appearing at the prime p in the of the conductor of E, and the local Tamagawa number at p. We will discuss how the Kodaira-Néron types and the local Tamagawa numbers of rational elliptic curves change over isogeny graphs. To answer this question, we examine how local data of rational elliptic curves change under quadratic twists. Our aim is to answer an open problem on how the Kodaira-Néron types and the local Tamagawa numbers of isogenous rational elliptic curves with wild ramification change under 2- or 3-isogeny. This is an ongoing project with Alex Barrios, Nandita Sahajpal, Darwin Tallana, Bella Tobin, and Hanneke Wiersema.

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Mathematics
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