

Number Theory Seminar

Counting Number Fields of Bounded Discriminant

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Abstract:

How many number fields K are there with $|\text{Disc}(K)| < X$, as a function of X ? In the first part of the talk, I will give a historical overview of this question and describe work beginning with Minkowski and Hermite. It will emerge that enumerating quadratic fields, while "trivial", anticipates the methods used to count higher degree fields. We will also see that both analytic and algebraic methods have a lot to offer concerning this problem.

In the second part of the talk, I will discuss some of my recent and ongoing work addressing these questions, from both analytic and algebraic points of view. I will not give a complete account, but will instead focus on some of the most interesting technical questions – how they arise and how we address them. This is (in various permutations) joint work with Bhargava, Cohen, Cojocaru, Lemke Oliver, Rubinstein-Salzedo, Taniguchi, and Xiong.

Tuesday, March 10 at 11:00 AM in SEO 427
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