

Speaker: Neeraj Kayal

Title: The quest for a polynomial that is hard to compute

Abstract:

How many basic operations (addition, subtraction, multiplication and division operations) are required to compute a given multivariate polynomial? While it has been known for many decades that most polynomials are extremely hard to compute (requiring an exponential number of operations), an explicit/easy-to-describe polynomial that is even moderately hard (requiring super-polynomial number of operations) remains elusive.

In this talk, I will describe the problem in detail with motivation and examples, and then describe a paradigm for obtaining lower bounds on the number of operations required and apply it to some restricted classes of arithmetic computation. Finally, I will conclude with some recent results in this direction.