



COLLOQUIUM

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Free resolutions of differential operators

Friday Feb. 2nd at 2:30pm in RT 1516

Bio: Rachel received her PhD at Syracuse University in 2020 under the supervision of Claudia Miller and afterwards spent three years at Yale as a Lecturer. She is now an Assistant Professor at Oberlin College. Rachel's research interests are in commutative algebra with a particular focus on solving problems using homological methods.

Abstract: The ring of differential operators which act on a commutative ring R is a classical object that reflects important properties of R and detects singularities. In this talk, I will introduce the notion of differential operators in commutative algebra and report on recent joint work with Jeffries, Miller, Packauskas, Pollitz, Rahmati, and Vassiliadou in which we develop new homological techniques for studying differential operators. In particular, we construct minimal sets of generators (and minimal free resolutions) for the modules of differential operators in low orders in a non smooth setting. This generalizes well-known results of Bernstein, Gelfand, and Gelfand and of Vigue from the 1970's.

Refreshments will be served in RT 1517 at 2:10pm