

ALGEBRA AND GEOMETRY SEMINAR

Speaker: Sasha Zotine (Queen's University)

Title: Computing Higher Direct Images of Toric Morphisms

Abstract: Sheaf cohomology is a ubiquitous tool in algebraic geometry for understanding the structure of varieties—but how does one actually get one's hands on cohomology? In this talk, I will discuss computing sheaf cohomology (and higher direct images) of toric varieties, which translate geometry into combinatorics. This translation is far more accessible and amenable to computation, allowing us to get a more tangible grasp of the abstract constructions. In particular, I implemented an algorithm for computing the higher direct images of toric morphisms for line bundles in Macaulay2, which I will demonstrate.