Northeastern University  Mathematics Department

Geometry, Physics, and Representation Theory Seminar

Kelly Jabbusch

University of Michigan, Dearborn

Thursday, November 29, 2:50-3:50 pm, Lake Hall 509/511

Towards Fujita's conjecture on projectivized toric vector bundles

Abstract

Let X be a projective variety with mild singularities and L an ample line bundle on X. In 1988 Fujita conjectured that for $k \geq \dim(X) + 1$, $L^k \otimes \omega_X$ is base point free, and for $k \geq \dim(X) + 2$, $L^k \otimes \omega_X$ is very ample. Fujita's conjecture is known to be true for small dimensions and for certain types of varieties, for example toric varieties. In this talk we'll focus on projectivized bundles $\mathbb{P}(\mathcal{E})$, where $\mathcal{E}$ is an ample toric vector bundle on a smooth toric variety, and give evidence for Fujita's conjecture to hold for $\mathbb{P}(\mathcal{E})$ and $L = \mathcal{O}_{\mathbb{P}(\mathcal{E})}(1)$. This will entail looking at the parliament of polytopes for the toric vector bundle $\mathcal{E}$ and its symmetric powers, $\mathrm{Sym}^m \mathcal{E}$.