Department of Mathematics
University of Notre Dame

ALGEBRAIC GEOMETRY SEMINAR

Speaker: Yajnaseni Dutta
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Date: Wednesday, May 1, 2019
Time: 3:00 PM
Location: 258 Hurley Hall

Lecture Title:

Fujita type conjectures for pushforwards of pluricanonical sheaves

Abstract

Extending the property that a line bundle on a smooth projective curve is globally generated if its degree is bigger than 2g, Takao Fujita, in 1985, conjectured that there is an effective bound on the twists by an ample line bundle to obtain global generation for canonical bundles. Even though the conjecture remains unsolved as of today, based on Demailly's singular divisor techniques, partial progress was made by Angehrn-Siu, Ein-Lazarsfeld, Heier, Helmke, Kawamata, Reider, Ye-Zhu et al. In this talk I will focus on similar global generation conjecture due to Popa and Schnell for pushforwards of canonical and pluricanonical bundles under certain morphisms f: Y --> X. The canonical bundle case first appeared in Kawamata's work in 2002 and the proof used Hodge theoretic techniques combined with the Demaiily's singularity techniques. In this talk I will present a generic global generation result for log canonical pairs building on Kawamata's theorem. I will also discuss weak positivity properties of these pushforwards and its implications toward subadditivity of Kodaira dimensions. Some parts of this work was done jointly with Takumi Murayama.

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