Department of Mathematics
University of Notre Dame
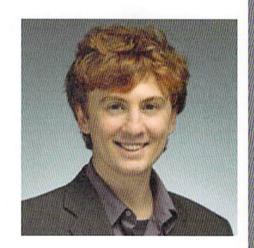
ALGEBRAIC GEOMETRY AND COMMUTATIVE ALGEBRA SEMINAR

Speaker: Andrei Jorza
University of Notre Dame

Date: Wednesday, November 7, 2018
Time: 3:00 PM
Location: 258 Hurley Hall

Lecture Title:
The Witten zeta function of projective varieties

Abstract

In the 80's Witten computed the volumes of certain moduli spaces of flat connections on a compact Riemann surface in terms of the special values of the Witten zeta function $\zeta_G(s)$, a Dirichlet series attached to a complex semisimple group G. Ten years ago Larsen and Lubotzky computed the abscissa of convergence of $\zeta_G(s)$ as the ratio of the rank of G by the number of positive roots. In ongoing work with Benjamin Bakker we introduced a Witten zeta function $\zeta_X(s)$ for a complex projective variety X. We showed that its abscissa of convergence can often be expressed as a ratio of the Picard rank by the dimension of a variety Y (not necessarily X) and found combinatorial bounds on the growth rate at the pole. In separate recent work with Sam Evens we showed that when X is a flag variety or the wonderful compactification of a split de Concini-Procesi pair then $\zeta_X(s)$ admits meromorphic continuation with simple pole to a neighborhood of the abscissa of convergence. In the special case of SL(3) we compute the residue using a formula of Zagier on multiple zeta functions.