

ALGEBRAIC GEOMETRY AND COMMUTATIVE ALGEBRA SEMINAR

Speaker: Nitin Chidambaram

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Date: Tuesday, November 15, 2022

Time: 2:30 PM

Location: 258 Hurley Hall

Zoom URL: NA



Lecture Title:

r-th roots – better negative than positive

Abstract

I will talk about the construction and properties of a cohomological field theory (without a flat unit) that parallels the famous Witten r -spin class. In particular, one can view it as the negative r analogue of the Witten r -spin class. For $r=2$, it was constructed by Norbury in 2017 and called the Theta class, and we generalize this construction to any r . By studying certain deformations of this class, we prove relations in the tautological ring, and in the special case of $r=2$ they reduce to relations involving only Kappa classes (which were recently conjectured by Norbury-Kazarian). In the second part of this talk, we will exploit the relation between cohomological field theories and the Eynard-Orantin topological recursion to prove W -algebra constraints satisfied by the descendant potential of the class. Furthermore, we conjecture that this descendant potential is the r -BGW tau function of the r -KdV hierarchy, and prove it for $r=2$ (thus proving a conjecture of Norbury) and $r=3$. This is based on joint work with Elba Garcia-Failde and Alessandro Giacchetto.