Women in Math

Anne Moreau, Eleny Ionel & Lisa Sauermann

Host: Tim Browning & Xujia Chen

Anne MoreauUniversité Paris-SaclayIsomorphisms between W-algebras to any vertex algebra one can attach invariants of different nature: its automorphism group, its character (a formal series), its associated variety (a Poisson variety), etc. In this talk, I will explain how to exploit the connection between these invariants to obtain nontrivial isomorphisms between W-algebras at admissible levels. To study a more general setting, one can use totally different technics developed more recently. Eleny IonelStanford UniversityModuli spaces of curves in 3-foldsSince their introduction in the eighties, the study of the moduli space of (pseudo)-holomorphic curves, and in particular the Gromov-Witten invariants extracted from them, have been a very powerful tool in symplectic geometry and topology. Motivated by string theory considerations, Gopakumar and Vafa conjectured that the Gromov-Witten invariants of Calabi-Yau 3-folds satisfy some surprising properties. In earlier joint work with Thomas Parker and more recently with Aleksander Doan and Thomas Walpuski we proved a structure theorem for these invariants which implies the Gopakumar-Vafa conjecture. This talk presents some of the background and key ingredients of our proof, as well as recent progress, joint with Penka Georgieva, towards proving that a similar structure theorem holds for the real Gromov-Witten invariants of Calabi-Yau 3-folds with an anti-symplectic involution. Lisa SauermannUniversity of BonnOn three-term progression-free sets and relatedquestions in additive combinatoricsGiven some large positive integer N, what is the largest possible size of a subset of $\{1,...,N\}$ which does not contain a three-term arithmetic progression (i.e., which does not contain three distinct elements x,y,z satisfying x+z=2y)? Similarly, given a prime p and a large positive integer n, what is the largest possible size of a subset of the vector space F_p^n which does not contain a three-term arithmetic progression? This talk will explain the known bounds for these longstanding problems in additive combinatorics, give an overview of the proof techniques, and discuss applications of these techniques to other additive combinatorics problems.

Tuesday, May 13, 2025 11:00am - 04:00pm

Raiffeisen Lecture Hall

This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station. Please find a schedule of the ISTA Shuttle on our webpage: https://ista.ac.at/en/campus/how-to-get-here/ The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.