ICTS Colloquium

Title   :   Beyond Semisimplicity: VOA Extensions, Symmetry, and Logarithmic CFT

Speaker   :   Harshit Yadav (University of Alberta, Canada)

Date   :   Wednesday, 21 January 2026

Time   :   2:00 PM (IST)

Abstract   :   Modular fusion categories provide the algebraic data of a 2D rational Conformal Field Theory (CFT), and also a precise rulebook for fusion and braiding of anyons, with applications to topological phases of matter and topological approaches to quantum computation. Logarithmic CFT is expected to produce non-semisimple analogues of these categories, and understanding when such categories exist and how to construct them is a basic problem.

This talk is about obtaining non-semisimple tensor categories from logarithmic CFT through vertex operator algebras (VOAs). The general existence problem is difficult, so one works through concrete VOA constructions that relate theories and can be studied categorically. I will discuss three such constructions: extensions $V \subset W$, orbifolds V^G under a finite symmetry, and the extra input needed to pass from a chiral VOA to a full CFT with boundaries and defects. The main focus will be extensions, where W is encoded by an algebra object in Rep(V) and Rep(W) is realized via local modules.

Venue   :   Emmy Noether Seminar Room
Zoom Link: https://icts-res-in.zoom.us/j/94251906983?pwd=e4ijCodUFoOGWAnaiA35nQ8TKljSl3.1
Meeting ID: 942 5190 6983
Passcode: 542163