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Representation and Number Theory Seminar

Perverse Schobers and 3d Mirror Symmetry for Hypertoric Varieties

by

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Perimeter Institute

Abstract

By now it is known that many interesting phenomena in geometry and representation theory can be understood as aspects of mirrorsymmetry of 3d $N = 4$ SUSY QFTs. Such a QFT is associated to a hyperkähler manifold X equipped with a hyperhamiltonian action of a compact Lie group G and admits two topological twists. The first twist, which is known as the 3d B -model or Rozansky–Witten theory, is a TQFT of algebro-geometric flavor and has been studied extensively by Kapustin, Rozansky and Saulina. The second twist, which is known as the 3d A -model or 3d Seiberg–Witten theory, is a more mysterious TQFT of symplecto-topological flavor. The 2-category of boundary conditions for each of these TQFTs is expected to categorify of category O for the hyperkähler quotient $X//G$ and 3d mirror symmetry is expected to induce a categorification of the Koszul duality between categories O for mirror symplectic resolutions. In this talk, I will describe an algebraic approach for abelian gauge theories due to myself, Ben Gammage, and Aaron Mazel-Gee. This generalizes works of Kapustin–Vyas–Setter and Teleman on pure gauge theory.

Date : 26 April 2023 (Wednesday)
Time : 9:00am – 10:0am
ZOOM :
<https://cuhk.zoom.us/j/98406698458?pwd=ejBFQXBtDU2bTnFZnZhaUINMHJUdz09>
Meeting ID : 984 0669 8458
Passcode : sesame

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