



Algebra/Topology Seminar

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ELLIPTIC CLASSES VIA THE PERIODIC MODULE, AND 3D-MIRROR SYMMETRY

Thursday, November 2, 2023

3:00 p.m. in BB-B012

ABSTRACT. Equivariant elliptic cohomology of symplectic resolutions was recently studied by Okounkov and his collaborators. For example, elliptic stable envelope is defined and it is closely related to geometric representation theory, mathematical physics, and 3d mirror symmetry. For the cotangent bundle T^*G/B , it basically says that the restriction to torus fixed points of elliptic stable envelopes are related with that for the Langlands dual. This is proved by Rimanyi–Weber. In this talk, I will focus on the elliptic Demazure–Lusztig operators that generate the elliptic classes corresponding to elliptic stable envelope. The (sheaf of) modules spanned by these classes are called the periodic module, which is obtained from certain twist of the Poincaré line bundle. Our main result shows that the elliptic Demazure–Lusztig operators can be assembled naturally to obtain a canonical isomorphism between the periodic module and that for the Langlands dual system. It recovers Rimanyi–Weber’s result. This is joint work with C. Lenart and G. Zhao.