BOSTON UNIVERSITY GEOMETRY AND PHYSICS SEMINAR

UNITARY REPRESENTATIONS OF 3-MANIFOLD GROUPS AND THE ATIYAH-FLOER CONJECTURE

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February, 12, 2020, 4:00 – 5:00pm
Math/Computer Science, Room B31
111 Cummington Street, Boston

Tea: 3:45pm in Room B24

Abstract: A useful tool to study a 3-manifold is the space of the representations of its fundamental group, a.k.a. the 3-manifold group, into a Lie group. Any 3-manifold can be decomposed as the union of two handlebodies. Thus representations of the 3-manifold group into a Lie group can be obtained by intersecting representation varieties of the two handlebodies. Casson utilized this observation to define his celebrated invariant. Later Taubes introduced an alternative approach to define Casson invariant using more geometric objects. By building on Taubes' work, Floer refined Casson invariant into a graded vector space whose Euler characteristic is twice the Casson invariant. The Atiyah-Floer conjecture states that Casson's original approach can be also used to define a graded vector space and the resulting invariant of 3-manifolds is isomorphic to Floer's theory. In this talk, after giving some background, In this talk, I will discuss a variation of the Atiyah-Floer conjecture, which is based on a joint work with Kenji Fukaya and Maksim Lipyanskyi.

See `http://math.bu.edu/research/geom/seminar.html` or contact Yu-Shen Lin (*yslin@bu.edu*) or Siu-Cheong Lau (*lau@math.bu.edu*) for more information.