BOSTON UNIVERSITY GEOMETRY AND PHYSICS SEMINAR

# NORMAL INVARIANT VIA TWISTED DERIVATIVE

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**Abstract:**A fundamental open question in symplectic topology is whether the symplectic structure of a cotangent bundle remembers the smooth structure of the base. I will present some progress on this problem, joint with M. Abouzaid, S. Courte and T. Kragh, which is phrased in terms of the normal invariant of surgery theory. For example, in dimension 8 there are two homotopy spheres, the standard 8-sphere and an exotic 8-sphere, and from our results it follows that their cotangent bundles are not symplectomorphic. Our methods involve finite dimensional parametrized Morse theory and ideas from Waldhausen's manifold approach to the algebraic K-theory of spaces, notably the derivative map on the space of tubes.

See `http://math.bu.edu/research/geom/seminar.html` or contact Siu-Cheong Lau (*scllouis@bu.edu*) or Brian Williams (*bwill22@bu.edu*) for more information.