Northeastern University  Mathematics Department

Geometry, Physics, and Representation Theory Seminar

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Thursday, September 19, 2:50-3:50 pm, Lake Hall 511

Probing 4-manifolds with near-symplectic forms

Abstract

Most closed 4-manifolds do not admit symplectic forms, but most admit "near-symplectic forms", certain closed 2-forms which are symplectic outside of a collection of circles. This provides a gateway from the symplectic world to the non-symplectic world. Just like the Seiberg-Witten (SW) invariants, there are invariants in terms of J-holomorphic curves that are compatible with the near-symplectic form. Although the SW invariants don't apply to (potentially exotic) 4-spheres, nor do these spheres admit near-symplectic forms, there is still a way to bring in near-symplectic techniques.