Geometry, Topology, and Physics Seminar

Twisted connected sum constructions of G_2 manifolds

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Room 6635 South Hall

Abstract: At present, there are only two known constructions for G_2 manifolds: desingularizations of toroidal orbifolds (constructed by Joyce), and the twisted connected sum construction (originally introduced by Kovalev, and extended by Corti, Haskins, Nordström and Pacini). The latter construction begins from algebraic geometry – a semi-Fano threefold and a K3 surface on it – and also involves a nontrivial application of the "matching" of two non-isomorphic algebraic K3 surfaces whose underlying Ricci-flat metrics are the same.

Although we will be applying results from the theory of K3 surfaces which were covered in earlier lectures this fall, this lecture is independent of the earlier ones.

This seminar is part of the NSF/UCSB 'Research Training Group' in Topology and Geometry. Information about future meetings can be found at http://www.math.ucsb.edu/~drm/GTPseminar/