Geometry, Topology, and Physics Seminar

The symmetries of type IIB string theory

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Room 6635 South Hall

Abstract: It has long been believed that the symmetry group of type IIB string theory is $\mathrm{SL}(2,\mathbb{Z})$. While this is true for the action on the bosonic fields of the theory, we will discuss a $\mathbb{Z}_2$ ambiguity for the action on fermionic fields. Thanks to this ambiguity, a compactification of type IIB string theory requires a Spin^c structure on spacetime rather than a spin structure, which turns out to be a feature rather than a bug.

We will also take steps towards an $\mathrm{SL}(2,\mathbb{Z})$-equivariant formulation of type IIB string theory, relying on the classical theory of elliptic integrals.

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/