

Crosscaps in Gepner models and the moduli space of T^2 orientifolds

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Abstract

We study T^2 orientifolds and their moduli space in detail. Geometrical insight into the involutive automorphisms of T^2 allows a straightforward derivation of the moduli space of orientifolded T^2 s. Using $c = 3$ Gepner models, we compare the explicit worldsheet sigma model of an orientifolded T^2 compactification with the CFT results. In doing so, we derive half-supersymmetry preserving crosscap coefficients for generic unoriented Gepner models using simple current techniques to construct the charges and tensions of Calabi–Yau orientifold planes. For T^2 s, we are able to identify the O -plane charge directly as the number of fixed points of the involution; this number plays an important role throughout our analysis. At several points we make connections with the mathematical literature on real elliptic curves. We conclude with a preliminary extension of these results to elliptically fibered $K3$ s.

e-print archive: <http://lanl.arXiv.org/abs/arXiv:hep-th/0612228>

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