

## M. Schulz: "String Junctions, Abelian Fibrations, and Flux/Geometry Duality"

*Thursday, 31 July 2008 10:30 (30 minutes)*

The simplest class of flux compactifications, type IIB toroidal orientifolds with  $N=2$  flux, is dual to a class of purely geometric IIA Calabi-Yau compactifications with no flux. Since the duality relates warped and nonwarped compactifications, it has the potential to teach us how to define warped Kaluza-Klein reduction, for which we do not yet have a satisfactory definition. The duality also maps D3 instantons to worldsheet instantons, so it furnishes a check on our understanding of instanton calculus. As a step toward these goals, I will discuss aspects of the duality recently explored in collaboration with Donagi and Gao. The first is an analog of F-theory for  $T^4$  fibrations, which is useful for encoding the dual CY geometry. The second is an analog of D(imensional) duality that relates the CYs to auxiliary surfaces that are simpler to study. As a byproduct, we learn how to construct new Calabi-Yau manifolds with nontrivial fundamental group, which should be useful for heterotic model building.

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**Track Classification:** W2