Special geometries with torus symmetry

Andrew Swann

Aarhus University

`swann@math.au.dk`

A survey of recent results on torus symmetry for metrics with special holonomy, particularly G_2 and Spin(7), and related geometries such as nearly Kähler six-manifolds. The known explicit examples of these geometries all have a large compact symmetry group and in particular an action of some torus. Studying the orbit structure and using ideas such as multi-moment maps, one gets pictures related to the Delzant description for toric manifolds, and/or certain geometric flows.