Universität Hamburg
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Fakultät für
Mathematik, Informatik
und Naturwissenschaften

Kolloquium über Reine Mathematik

Einladung zu einem Vortrag

Dienstag, 6. 12. 2022

17 Uhr, Geom H4

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(University College London)

Complete non-compact manifolds with holonomy G2 and ALC asymptotics

Abstract:

G2 manifolds are the Ricci-flat 7-manifolds with holonomy G2. Until recently there was only a handful of known examples of complete non-compact G2 manifolds, all highly symmetric and arising from explicit solutions to ODE systems. In joint work with Haskins and Nordström, we produced infinitely many G2 manifolds on total spaces of principal circle bundles over asymptotically conical Calabi-Yau manifolds.

The asymptotic geometry of the G2 metrics we produced is analogous to the geometry of 4-dimensional ALF (asymptotically locally flat) spaces and has been labelled ALC (asymptotically locally conical) in the physics literature. In this talk, after reviewing these results, I will discuss some further joint work on this class of manifolds, in particular consequences of the good deformation theory of ALC G2 manifolds and the construction of new examples with a slightly more complicated ALC asymptotic geometry analogous to the well-known Atiyah-Hitchin metric in 4-dimensional hyperkähler geometry.