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E I N L A D U N G

im Rahmen Literaturseminars

zum Vortrag

von

Walter Simon

(Univ. Vienna)

über

„Uniqueness of asymptotically flat vacuum instantons with a cyclic isometry group“

Abstract:
We consider 4-dimensional, Ricci-flat and asymptotically flat (AF) manifolds with metrics of either Lorentzian or Euclidean signature, and with a 1-parameter group of isometries whose Killing tangent vectors have bounded length at infinity. If non-flat we call such Lorentzian solutions stationary AF black holes (SBHs), and the Euclidean ones S1-AF instantons (SGIs). The latter play a role in the path integral approach to Quantum Gravity which we review briefly. We then recall known examples of SBHs and SGIs. We continue with explaining the "nuts and bolts" classification of SGIs which is the Euclidean counterpart to stationary and static black hole horizons.
We next review the Kerr uniqueness results, which read that analytic, connected SBH must be Kerr, and that SGIs with 2 nuts must be Euclidean Kerr.
We also discuss the family of SGIs found by Chen and Teo which have 3 nuts and no real Lorentzian counterparts.
As a step towards a conjectured uniqueness result for this family, we show that any SGI with "Chen-Teo topology" must be "half algebraically special".
We finally sketch uniqueness results for stationary black holes and S1-instantons with are locally asymptotically flat rather than AF.

Zeit: Mittwoch, **18.10.2023**, **14.15 h VERA Seminarraum, Hoftrakt, Währinger Straße 17**

https://univienna.zoom.us/j/6540036841?pwd=SytyVkZJZzNyRG9lMm13ejlHeHRRUT09

gez.: P. Chrusciel, D. Fajman