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Einstein–Maxwell–Anti-de-Sitter solitons and black holes

Abstract

We consider a new class of solutions in Einstein-Maxwell theory with a negative cosmological constant, that approach asymptotically a globally Anti-de-Sitter (AdS) background in four spacetime dimensions. There are no analogue objects to these solutions in asymptotically flat spacetime and their existence can be traced back to the "box"-like behaviour of the AdS spacetime. Both solitons and black holes are discussed.

In the latter case, we report on static solutions that have no continuous spatial symmetries. These black holes have a smooth, topologically spherical horizon, but without isometries.