

Geometry and Topology Seminar

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**Tuesday, November 4, 2014
10:30-11:30am SN 1103**

Black hole non-uniqueness from spacetime topology

Abstract:

An important result in general relativity is the 'no-hair' theorems. Roughly this states four-dimensional black holes are uniquely characterized by their mass, angular momenta, and charge. In higher dimensions, the exterior (domain of outer communications) of a black hole spacetime may contain 2 cycles. I will explain how this leads to a gross violation of black hole non-uniqueness. As a simple example I discuss a new four-parameter family of black hole solutions with S^3 horizon and a 2-cycle in the exterior. This solution evades a previously known uniqueness theorem.