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Superfluid black holes

Tuesday 30 May 2017 16:15 (15 minutes)

In my talk I will discuss a recently discovered class of black holes which are the first such examples to exhibit a lambda-transition, that is a line of second order (continuous) phase transitions. The lambda-transition resembles those which occur in the context of condensed matter systems which, in the case of ^{4}He marks the normal fluid/superfluid transition. The transition occurs within the context of black hole chemistry for a class of asymptotically anti de Sitter black holes in cubic (and higher) order Lovelock gravity conformally coupled to a real scalar field. In my talk, I will introduce the model and the phase transition and also present the necessary conditions which allow for such a transition to occur more generally.

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