Jorrit Kruthoff
University of Amsterdam

Superradiance and representation theory

I this talk I will consider the canonical quantisation of scalar and fermion quantum fields in the near horizon limit of a Kerr black hole. In this limit, the dynamics is well approximated by a charged quantum field propagating in an AdS2 geometry endowed with an constant, symmetry preserving background electric field. At large charge, the fields oscillate near the AdS2 boundary, and no longer admit a Hilbert space with a standard Fock structure. We discuss a definition for the quantum field theory, whereby we embed the AdS2 in an asymptotically two dimensional Minkowski space. This allows the construction of a novel observable that resembles the standard flat space S-matrix. This talk is based on work in progress with Dionysios Anninos.

Wednesday, Oct. 31, 2018
2:00pm
401 Physical Sciences Building