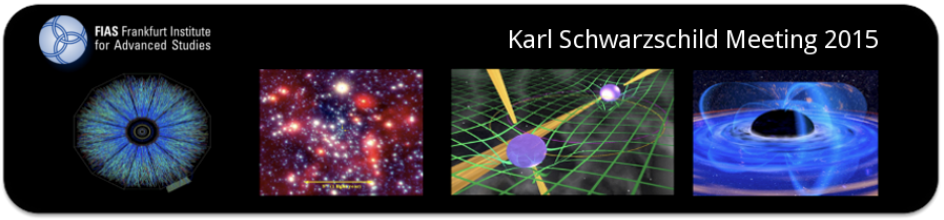

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Quantum chaos inside black holes

Tuesday, 21 July 2015 14:40 (20 minutes)

We show how a system of $N >> 1$ horizonless conic singularities, with average opening angle at the horizon $\langle\Theta\rangle = 2\pi$, can effectively approximate the geometry and the entropy of a semiclassical black hole. We test what happen to in-going informations in such a system, with a simple gedanken experiment: we consider a plane wave function in-going in this system of N conic singularities. The initial quantum wave will subsequently scatter on N conic singularities, and the resultant dynamics will be a quantum chaotic one. This system is nothing but a quantum Sinai billiard. As a consequence, information is "practically" lost in this system. Our approach also seems motivated by fuzzballs' physics, where BPS microstates and conical defects are typically considered.

Primary author: ADDAZI, Andrea (INFN)

Presenter: ADDAZI, Andrea (INFN)

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