## Sergey Sibiryakov: Semiclassical S-matrix for black holes

Thursday 29 October 2015 09:30 (1 hour)

Thought experiments with black holes provide an important theoretical tool to uncover the properties of quantum gravity. I will advocate a semiclassical approach to the study of quantum black holes. In particular, I will describe a semiclassical method to calculate S-matrix elements for two-stage gravitational transitions involving matter collapse into a black hole and evaporation of the latter. The method consistently incorporates back-reaction of the collapsing and emitted quanta on the metric. I will illustrate the method in several toy models describing spherical self-gravitating shells.