Physics Seminar: Francesco Sannino
Wednesday, June 5 · 2:00 – 3:00pm

Location: 313

Title: Living on the edge: Quantum black hole physics from the event horizon

Abstract: I will employ a particle physics approach to uncover universal insights into the quantum properties of black holes. Specifically, for spherically symmetric and static black holes, I will begin by representing the quantum metric in terms of a physically meaningful parameter. Subsequently, by assuming a minimal level of regularity at the black hole's horizon, I will derive explicit series expansions of the metric. This framework will enable us to calculate essential thermodynamic quantities of the black hole, including the Hawking temperature and entropy, using model-independent expressions that extend beyond the limitations of a large mass expansion. Furthermore, when imposing the requirement of the absence of curvature singularities at the horizon, I will deduce general consistency conditions for the metric deformations. The significance of these conditions will become evident as I will demonstrate their violation by well-known models present in the existing literature.