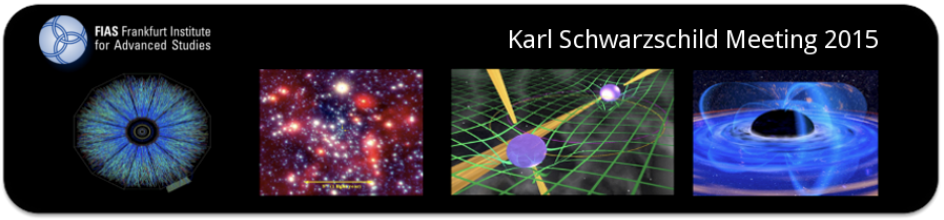

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Quantum black holes as the link between microphysics and macrophysics

Wednesday, 22 July 2015 09:00 (1 hour)

Black holes span 60 decades of mass - from the Planck scale (10^{-5}g) to the cosmological scale ($10^{22}M_{\rm Sun}$) - and probe many domains of physics (quantum gravity, high-energy physics, gravitational physics, astrophysics and cosmology). Quantum black holes, here regarded as the ones for which quantum evaporation is important (i.e. those hotter than the CMB temperature), span the lower 30 decades of mass and provide a profound link between micro and macro physics. The link is most striking at the Planck scale itself and this raises the question of what happens to relativity theory as one approaches the Planck scale from above and to quantum theory as one approaches it from below. This may also suggest some connection between sub-Planckian black holes and elementary particles.

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