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CIDMA CENTRO DE I&D EM MATEMÁTICA E APLICAÇÕES
CENTER FOR R&D IN MATHEMATICS AND APPLICATIONS

Gravitational Geometry and Dynamics Group Seminar

Wed. 22nd February '23 Online at 11h00

Quantisation of a charged scalar field on Reissner-Nordström spacetime

Visakan Balakumar

Sheffield University

Zoom meeting ID 962 2413 8340

passcode: ask to annulli@ua.pt - herdeiro@ua.pt

It is well known that a classical charged scalar field on Reissner-Nordström spacetime undergoes superradiant scattering. By quantising the field, via canonical quantisation, we investigate the subtleties that superradiant scattering presents in the quantisation of the field. We define putative quantum states for the charged scalar field based on the Boulware, Unruh and Hartle-Hawking states and study the differences in quantum observables between the various states, thereby alleviating the need for renormalisation. Our conclusions have implications for the parallel situation of a co-rotating scalar field undergoing superradiant scattering in Kerr spacetime.

https://videoconfcolibri.zoom.us/j/96224138340?pwd=YkZUMGlLb0dqVjcxOVpXMTFVMTBXQT09

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