

RTG Models of Gravity – Online Colloquium

Date:	28 October 2020
Time:	14:00 – 16:30 CET
Location:	Online (orig.: University of Hannover) ZOOM Link: https://zoom.us/j/98680726099?pwd=SzExdmJZQURTd0VNeEYreWVsZTh-SZz09 Meeting-ID: 986 8072 6099, Access code: 625337

Program

- 14:00 – 15:00 **Speaker:** Vitor Cardoso (Universidade Técnica de Lisboa, Portugal)
Title: The bright side of black holes
Abstract: We celebrated the centenary of Eddington's expedition and of the first outstanding test of Einstein's General Relativity. One of the most remarkable possibilities of GR - the subject of this year's Nobel Physics prize - concerns gravitational collapse to black holes. Yet, true agnostic tests of the black hole nature of dark compact objects are hard to devise. I would like to describe possible tests of the geometry describing observations, and how one can quantify the presence of horizons in the spacetime.
- 15:00 – 15:30 *Coffee Break*
- 15:30 – 16:30 **Speaker:** Jerzy Lewandowski (University of Warsaw, Poland)
Title: Black hole and cosmological horizons, their equations, emergence in spacetimes and applications
Abstract: Geometry of black hole and cosmological horizons satisfies constraints induced by Einstein's equations. They are the Petrov type D equation in non extremal horizon case and the Near extremal Horizon Geometry equation. The solutions have the properties known from the global black hole theory: no-hair, rigidity, topological censorship. Generalization to horizons that have the Hopf bundle topology leads to new results on the Kerr-NUT-(anti) de Sitter spacetimes. Horizons can be also applied to description of gravitational radiation.