

Title: Projective differential geometry and asymptotic analysis in General Relativity

Abstract: Every Lorentzian manifold  $(M, g)$  has a natural projective structure induced by its Levi-Civita connection. In some cases,  $M$  can be embedded into a manifold with boundary  $\bar{M}$ , in which the projective structure extends to the boundary:  $(M, g)$  is then said to be projectively compact. In this talk, we will discuss applications of the projective structure to the asymptotic analysis of partial differential equations, in particular a generalised Proca equation, on projectively compact Lorentzian manifolds.