



Sommerfeld Theory Colloquium

Prof. Bernard Carr

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Primordial Black Holes After 50 Years: The Bright Side

This talk will overview the history of primordial black hole (PBH) research from the first papers around 50 years ago to the present time. I will first discuss their possible formation mechanisms, including critical collapse from inflationary fluctuations and various types of phase transition. I will then describe the numerous constraints on the number of PBHs from various quantum and astrophysical processes, this being the main focus of PBH research until recently. In the last decade there has been a shift of emphasis to the search for evidence for PBHs what I term the bright side. So the final part of my talk will present this evidence, with particular emphasis on their possible role as dark matter candidates, sources of gravitational waves and seeds for supermassive black holes and early cosmic structures.

Wednesday, 5 February 2025, 16:15h, Room A348, Theresienstr. 37/III

Prof. Gia Dvali and Florian Kühnel