PHYSIKALISCHES KOLLOQUIUM

des Fachbereichs Physik
der Johann Wolfgang Goethe-Universität Frankfurt

Mittwoch, den 05.12.2018, 16 Uhr c.t.
Großer Hörsaal, Raum _0.111,
Max-von-Laue-Str. 1

Prof. Dr. Harald Pfeiffer

MPI für Gravitationsphysik (Albert-Einstein-Institut), Potsdam

"Black holes, gravitational waves and supercomputers"

Black holes are among the most bizarre objects in nature - consisting solely of vacuum, they change causality by warping space and time. The gravitational wave observations by LIGO, Virgo and GEO have opened a new means to observe pairs of two black holes that orbit about each other and ultimately merge into a larger black hole. This talk describes the intricate behaviour of binary black holes, and what we have already learned about them, the universe and fundamental physics through observations of their gravitational waves. We will in particular highlight the central role of supercomputer calculations for realizing past and future gravitational wave observations. Despite the seeming simplicity of black holes and the impressive advances of computer calculations during the last years, tremendous further breakthroughs are required for the next generation of ground- and space-based gravitational wave observatories.

Die Dozenten der Physik

local host: Prof. Dr. Luciano Rezzolla, rezzolla@th.physik.uni-frankfurt.de