Vorstellungsvortrag

im Rahmen des Berufungsverfahrens zur Besetzung der

W2-Professur für Numerische Relativität und Binary Black Holes

als gemeinsame Berufung mit dem

Max-Planck Institut für Gravitationsphysik (Albert-Einstein-Institut)

mit anschließender Lehrprobe

am Freitag, den 18. Oktober 2019 um 13h15

in Haus 28, Raum 2.28.2.011

Dr. Harald Pfeiffer, AEI Potsdam

"Black holes, supercomputers and gravitational waves"

Black holes are among the most bizzarre objects in nature - made of vacuum, they change causality by warping space and time. Orbiting and merging pairs of black holes emit gravitational waves, which are detected by the LIGO and Virgo detectors and result in far-reaching novel insights into astrophysics and fundamental physics. A crucial role in opening the gravitational wave window onto the universe is played by Numerical Relativity, supercomputer calculations directly solving the full Einstein Equations of General Relativity. In this talk, I will introduce the techniques used in Numerical Relativity. I will highlight the central role of Numerical Relativity for gravitational wave astronomy, and give a brief survey of ist accomplishments. I will also give an outlook on the future of the field: Despite the seeming simplicity of black holes and the impressive advances of computer calculations during the last decade, tremendous further breakthroughs are required for the next generation of ground- and space-based gravitational wave observatories.

Hierzu lade ich herzlich ein.

gez: Prof. Dr. Philipp Richter
(Vorsitzender der Berufungskommission)