Universität Hamburg
DER FORSCHUNG | DER LEHRE | DER BILDUNG

CHAMPP
CENTER IN HAMBURG
FOR ASTRO, MATHEMATICAL
AND PARTICLE PHYSICS

LECTURE COURSE IN THE CHAMPP GRADUATE SCHOOL

Winter Term 2018/2019

General Theory of Relativity

B. Bahr

Course Description:

This lecture will provide an introduction to the basics of the theory of general relativity including applications such as black holes and cosmology. The following topics will be covered:

- Recapitulation of the Theory of Special Relativity: Four-vector Formalism, accelerated observers
- Manifolds and Curved Spaces
- Basics of Tensors and differential forms
- Gravitation and Einstein's Field Equations
- The Schwarzschild Solution and Black Holes
- Cosmology: Maximally symmetric spaces and the Friedmann-Robertson-Walker metric
- Gravitational waves

Prerequisites:

Knowledge of theoretical physics on the level of a bachelor degree in physics is strongly recommended. Basic knowledge of special relativity.

Literature:

will be announced in the lecture

Date and Place:	Wed, 10:15 – 11:45, Hörsaal III, Jungiusstrasse 9 Fri, 10:15 – 11:45, Hörsaal III, Jungiusstrasse 9
Problem Classes:	Fri, 12:00 – 13:30, SR 1, Jungiusstrasse 9 and Fri, 14:15 – 15:45, SR 1, Jungiusstrasse 9
Starting on:	17 October 2018