Universität Hamburg
DER FORSCHUNG | DER LEHRE | DER BILDUNG

CHAMPP
CENTER IN HAMBURG FOR
ASTRO-, MATHEMATICAL AND
PARTICLE PHYSICS

LECTURE COURSE IN THE QUANTUM UNIVERSE RESEARCH SCHOOL

Summer Term 2019

Introduction to General Relativity and Astrophysical Applications

R. Banerjee

Course Description:

This is an introductory course to the theory of *General Relativity* where we will focus on the physcial basics (e.g., space-time, equivalence principle, curved space and space-time, geodesics) and astrophysical applications (e.g., perihelion drift, black holes, accretion discs, gravitational lensing, gravitational waves).

The course is based on James Hartle's book "GRAVITY: An Introduction to Einstein's General Relativity".

Prerequisites:

Theoretical mechanics
Basics in astronomy and astrophysics

Literature:

James Hartle, *GRAVITY: An Introduction to Einstein's General Relativity* (2003)
Misner,Thorne & Wheeler, *GRAVITATION* (1973,the brick)
Padmanabhan, *GravitationFoundations and Frontiers* (2010)
Bernard Schutz, *A first course in General Relativity* (2009)
Michele Maggiore, *Gravitational Waves, Pack: Volumes 1 and 2: Volume 1: Theory and Experiment, Volume 2: Astrophysics and Cosmology* (2018)

Date and Place:	Mon, 12:30 – 14:00, SR 3, Jungiusstr. 9 Tue, 10:30 – 12:00, SR 3, Jungiusstr. 9
Problem Classes:	Mon, 10:30 – 12:00, SR 3, Jungiusstr. 9
Starting on:	2 April 2019