UNIVERSITÄT BONN

bctp Bethe Center for Theoretical Physics

Bethe Lecture Series

Gravitational Waves

February 6 - 10, 2023
Bonn, Germany

Gravitational Waves as Linearized Gravity

Jan-Willem van Holten
(Nikhef and Leiden University)

This set of lectures introduces gravitational waves from the linearized Einstein equations of general relativity. After concepts like polarization, quadrupole approximation or radiation reaction are discussed, the results for the famous Hulse-Taylor neutron stars will be derived. If time permits, I will also discuss EMRI binaries, consisting of a massive black hole and a much lighter companion.

From Scattering Amplitudes to Black Holes and Gravitational Waves

Ricardo Monteiro
(Queen Mary University of London)

These lectures will discuss the recently revealed connections between scattering amplitudes and classical physics. We will start by reviewing a formalism to connect certain classical observables relevant for gravitational wave physics to scattering amplitudes. Then, we will consider how the double copy, which is a relationship between scattering amplitudes in gravity and in gauge theory, extends to classical gravity and connects to the geometric formulation of general relativity.

Bethe Center for Theoretical Physics
Physikalisches Institut
Universität Bonn
Nußallee 12
53115 Bonn
Phone: (+49) 228 / 73 3770
e-mail: theory@physik.uni-bonn.de
http://bctp.uni-bonn.de

Additional information and application form:

https://indico.hiskp.uni-bonn.de/event/161/