

# Physikalisches Kolloquium

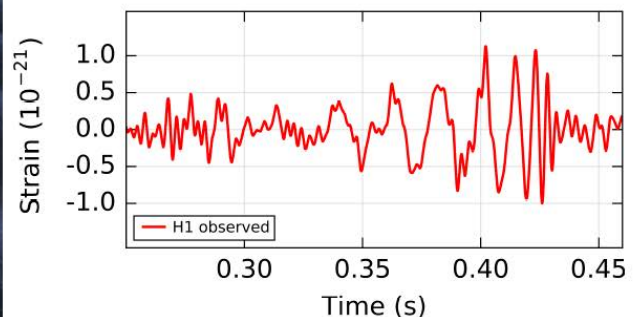
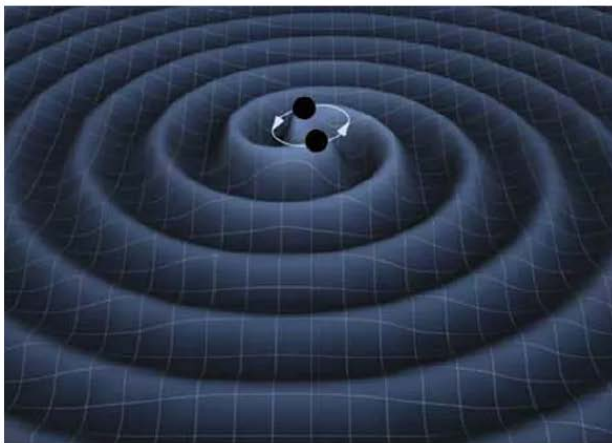
Donnerstag, 19.05.2022, 16:30 Uhr – Hörsaal 5J

## Gravitational waves and binary black holes

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Gravitational waves are space-time ripples propagating with the speed of light somewhat similar to electromagnetic waves. In 2015, the gravitational-wave observatory LIGO detected, for the first time, the passing of gravitational waves through Earth. This event was triggered by waves produced by two black holes that were orbiting on quasi-circular orbits. The talk focuses first on verifying that the existence of gravitational waves is unavoidable within the framework of General Relativity. The final part of the presentation is oriented to show how one can estimate some physical parameters of the binary black hole system, from the properties of the detected signal.



The left panel sketches two orbiting black holes while losing energy in the form of gravitational waves. The signal detected at LIGO on September 14, 2015 is shown in the right.

**Ab 16:15 Uhr kollegialer Austausch im Foyer vor dem Dekanat der Math.-Nat.-Fakultät (Gebäude 25.31. Ebene 00)**

Für die Dozenten der Physik  
Prof. Dr. Dr. Carsten Müller

**Das Kolloquium ist Teil eines Habilitationsverfahrens.**