

# Cours de physique théorique de Saclay

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Vendredi 24/06/2022, 10:00-12:01

Orme des Merisiers Salle Claude Itzykson, Bât. 774

## Gravitational waves in a nutshell

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<https://www.ipht.fr/>

The detection of gravitational waves (GWs) with ground-based interferometers opened a revolutionary vista on the Universe, upending our notions about the origin of stellar-mass black holes, and offering a spectacular multimessenger view of a binary neutron-star merger and of the ensuing radiation across the electromagnetic band.

From a fundamental-physics standpoint, GWs provide experimental access to the strong-field regime of general relativity and to precision tests of modified gravity. This whirlwind tour of GW science is meant to give theoretical physicists and non-GW astrophysicists an appreciation of current topics of GW research, as well as an entry point to connect their work with GW applications or observations.

The five lectures will cover:

GW propagation and detection

GW generation and waveform models

Astrophysical GW sources, with focus on the LIGO-Virgo catalog

GW data analysis, with focus on tests of GR

Cosmology and cosmography with GWs

Livestream on [youtube.com/IPhT-TV](https://www.youtube.com/IPhT-TV): no subscription required

Videoconference: subscribe to the course newsletter on the website to receive links

courses page :

<https://courses.ipht.fr/?q=en/node/249>

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