UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Detection of Gravitational Waves

2425-1-113R-15

Title

Gravitational Waves Detection

Teacher(s)

Massimo Carpinelli

Language

Italian/English

Short description

The course describes experimental techniques for the detection and analysis of Gravitational Waves (GW) signals. Historical introduction. Properties of GW. GW sources. Detection of GW signals.
Laser interferometers for GW detection. Large interferometers currently in operation for GW detection: LIGO, Virgo, KAGRA. Characteristics of a GW interferometer. Main noise sources in a GW interferometer as a function of frequency. Quantum noise, thermal noise, seismic noise. Vibration isolation. Control systems. Future detectors: Einstein Telescope, Cosmic Explorer, LISA.

CFU / Hours

2/16 hours

Teaching period

Second Semester

Sustainable Development Goals