“Exploring the Universe with Gravitational Waves"

PROGRAMMA

- Cosmological sources of Gravitational waves (GWs) and characterization (8 ore Angelo Ricciardone)
Introduction to GWs and cosmological sources
Observables for GWs at interferometers
Detector Response of interferometer to a GW
Characterization of the Stochastic Gravitational Waves Background LISA and primordial GWs

- Cosmological tests with gravitational waves (8 ore Alvise Raccanelli)
Observational cosmology consequences of gravitational waves detections
Cosmological models testable with GWs: primordial black holes, ultra-light axions, supermassive black hole seeds, modified gravity
GW x LSS: introduction and prospects for future experiments

- Gravitational waves and geometrical optics (8 ore Daniele Bertacca)
Introduction to the geometrical approach to GWs
Propagation in flat and curved space-time and generation of GWs in the weak field limit
Projection effects on GW luminosity distance and the observed angular spectrum of the astrophysical Stochastic Gravitational Wave Background