

UNIVERSITÀ DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Astrophysics of Gravitational Waves

2122-1-F5802Q008

Aims				
Acquire basic knowledge in the field of gravitational waves, which have recently extraordinary tool for understanding the universe and the objects that populate it.	been	confirmed	as	an
Contents				
Detailed program				
1- Theory of gravitational wave emission				
2- Gravitational wave signals from binary systems				

3- Astrophysics of gravitational wave sources
- stellar mass binaries (white dwarfs, neutron stars, black holes)
5- Bayesian data analysis of gravitational wave signals
- signal to noise ratio
Prerequisites
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None, besides the basic classes of the bachelor.
It is advised to take this class after Relativistic Astrophysics. Some of the concepts developed during the course will
be easier to understand if the students have attended the General Relativity course. I stress, however, that this is
not a needed prerequisite, as the course will be largely self-contained.
Teaching form
42 hours of frontal lectures, mostly at the blackboard, occasionally with the support of slides
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Textbook and teaching resource
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Supporting material will be uploaded on e-learing during the course of the semester, in any case here follows an (incomplete) list of useful references.
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2-gravitational wave signals from binaries Michele Maggiore: "Gravitational Waves". Book 2, 2018
Semester
Second semester
Assessment method
Oral examination. The student will first be asked to elaborate on a topic of his choice for about 15-20 minutes. In the rest of the exam, the lecturer will ask other questions covering any of the topics treated during class.
There will be no intermediate examinations nor marked homework.
Office hours