
Editorial

Gravitational Waves: A Challenging New Window to the Universe

Christian Corda*

International Institute for Theoretical Physics and Mathematics Einstein-Galilei, Via Santa Gonda, 14 - 59100 PRATO, Italy.

The data analysis of interferometric gravitational wave (GW) detectors has nowadays been started, and the scientific community hopes in a first direct detection of GWs in next years. In such a way, the indirect evidence of the existence of GWs by Hulse and Taylor, Nobel Prize winners, will be confirmed. This will be a fundamental step in the ambitious project of performing a GWs astronomy.

Detectors for GWs will be important for a better knowledge of the Universe and also because the interferometric GWs detection will be the definitive test for General Theory of Relativity or, alternatively, a strong endorsement for Extended Theories of Gravity.

Strong and mysterious processes of the Universe, such as supernova explosions, catastrophic collisions, fusion of binary systems, rotation of pulsars, interaction of black-holes or the original big-bang generate GWs. Thus, GWs are a

potential way to obtain new important information on them. Such a observation will be important also for an understanding of the famous Dark Matter and Dark Energy.

On the other hand, the discovery of GW emission by the compact binary system composed by two Neutron Stars PSR1913+16 has been, for physicists working in this field, the ultimate thrust allowing to reach the extremely sophisticated technology needed for investigating in this field of research.

The goal of this Hot Topic is to provide a good and reliable source of information on current developments in the field of GWs. The emphasis will be on publishing quality articles available to researchers worldwide. The Hot Topic will be essential reading for scientists and researchers who wish to keep abreast of the latest developments in the field.

*Address correspondence to this autor at the International Institute for Theoretical Physics and Mathematics Einstein-Galilei, Via Santa Gonda, 14 - 59100 PRATO, Italy. Tel: 0039 380 341 60 37; E-mail: christian.corda@ego-gw.it

© Christian Corda; Licensee *Bentham Open*.

This is an open access article licensed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0/>) which permits unrestricted, non-commercial use, distribution and reproduction in any medium, provided the work is properly cited.