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News from Gravitational Waves Astronomy

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Gravitational waves astrophysics is a new and promising field of research of the Universe. In contrast to the observations of the electromagnetic waves (radio waves, visible light, X rays and gamma), which are the main source of our current knowledge, we 'listen" to the Universe by registering minor disturbances of the space time curvature using the LIGO and Virgo laser interferometric detectors. Gravitational waves are emitted during the largest cosmic cataclysms mergers of binary systems of neutron stars or black holes, explosions of supernovae, and by other sources, eg unstable or deformed rotating neutron stars. The direct detection of gravitational waves allows the study of objects that are dark (do not shine in electromagnetic waves), testing the theory of gravity in the dynamic regime of strong gravitational field, and the direct study of the interior of neutron stars which contain the densest and most extreme matter existing currently in the Universe. These information cannot be currently obtained using other methods. In this talk we present an overview about recent discoveries on this so promising field of research.

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