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Prospects of continuous gravitational waves searches from Fermi-LAT sources

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Non-axisymmetric spinning Neutron Stars are expected to be sources of continuous gravitational waves. Only a small fraction of the total number of neutron stars believed to exist in the Galaxy is observed through their electromagnetic emission. This number steadily increasing recently, thanks to the Fermi-Large Area Telescope and to radio surveys. The Fermi-Large Area Telescope catalogue contains several potentially interesting sources for gravitational wave searches, such as supernova remnants and the “unassociated” sources. In order to look for continuous gravitational signals a knowledge of the NS parameters, i.e rotational frequency and position, is needed. Depending on the degree of accuracy with which these parameters are known, several types of search can be performed. In this talk I will discuss the perspectives and considerations of continuous gravitational wave searches for Fermi-LAT sources, including the astrophysical information that we can derive from a detection or even from upper limits.

Summary

In this talk I will present which are the data analysis techniques used to look for continuous gravitational waves focusing on their strong and weak points. Moreover I will present how these techniques can be applied to the gamma-ray sources identified by Fermi-Large Area Telescope. Finally I will present which are the information that we can infer from such kind of studies.

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