

A group theoretic approach to detecting gravitational waves from asymmetric rotating neutron stars

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Abstract

The era of advanced ground based interferometric detectors of gravitational waves (GW) has arrived. These detectors are expected to go online in six years or so from now and which will have requisite sensitivity for detecting and observing astrophysical gravitational wave sources. In this article we will focus on a specific GW source, the GWs emitted by an isolated rotating neutron star/pulsar, and describe a novel approach to address this highly computationally intensive problem. We will describe how the symmetries in the model can be potentially used to reduce the computational effort.