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GRAVITATIONAL LENSING OF NEUTRON STAR GRAVITATIONAL WAVES, A PAIR OF NEUTRON STAR, BLACK HOLES, AND NON-SPINNING BLACK HOLES

Abstract

Gravitational waves are a great way of understanding the nature of the universe and also provide us with information on how massive objects affect spacetime. Gravitational waves can be used for locating events such as BH -BH collisions using LIGO and VIRGO experiments. In the future we will be having more and more sensitive Experiments such as the Einstein Telescope which will be constructed underground. It is said that we will be a lot more sensitive in observing the Gravitational waves which have interference and lensing effects. The lensing effect also known as Gravitational lensing which is difficult to observe in our LIGO and VIRGO which are first generation experiments whereas Einstein Telescope is third Generation experiment will be sensitive enough to observe these variations. Gravitational lensing in Gravitational waves takes place when Gravitational waves pass through the massive objects. There are lots of configurations of massive objects that can be taken into account for gravitational lensing on Gravitational waves and only every few were studied in current data, so we will be requiring more models to describe the Gravitational lensing effects. In this paper will analyse some of the configuration that can be a major cause for gravitational lensing on GW. We will be considering the NS-BH pair and non-spinning BH as our system. After considering each system separating we will be calculating and stimulating the GW that were affected by Gravitational lensing under each system and consider some specific mass for these objects and obtain the GW after the Gravitational lensing. Which can be used in the future to compare the mass of the object for producing the gravitational lensing.