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Gravitational Lensing Effect in Triple Black Hole System

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The origin of the binary black hole is one of the most charming, cutting-edge, and active Astrophysical topics. One of the possible formation channels is dynamical formation under the effect of another compact object, during which a triple system must exist. To test the existence of the third object, we focus on the gravitational lensing effect on the Gravitational Waves emitted from the binary system. When we consider the binary as the gravitational source and the third object as the lens, the amplification factor which is a function of both frequency and position will show differences under different source parameter combinations and orbital types when the source is inside the defined obvious lensing window, which will help us infer the source information and separate different orbits. This work mainly focuses on the magnification difference between circular and straight orbits with different incoming directions under low-velocity conditions.

Field of study

Astrophysics

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