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Gravitational wave properties of the HESS J1731-347 Object as a Twin Compact Star

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In this work we present the properties of gravitational waves emitted from the f-mode oscillation of a compact star corresponding to the Object HESS J1731-347 as a Twin Compact Star, a hybrid neutron star with the same mass as a larger, purely hadronic neutron star. HESS J1731-347 is a peculiar object due to its reported compactness consisting of a mass of 0.77 solar masses and a radius of 10.4 km. Gravitational waves carry information of the damping time of the f-mode and are thought to be associated with pulsar glitches, thus providing the possibility of an upcoming multi-messenger observation performed by future gravitational waves observatories like the Einstein Telescope or the Cosmic Explorer.

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