

Phenomenology 2021 Symposium



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Mirror Neutron Stars

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The paradigm of neutral naturalness suggests the existence of highly non-minimal hidden sectors. In particular, the Mirror Twin Higgs model postulates that some of dark matter is in the form of mirror matter, featuring mirror quarks, leptons and gauge bosons whose masses are a few times heavier than their Standard Model counterparts. I will discuss the possibility that mirror matter could have coalesced into Mirror Neutron Stars, invisible cousins of ordinary neutron stars. I will show how the properties of Mirror Neutron Stars can be determined using repurposed Lattice QCD data, and discuss the gravitational wave signatures of Mirror Neutron Star mergers. Given the impressive reach of current and future gravitational wave detectors, gravitational wave astronomy may offer a novel and powerful means of detecting (or constraining) non-minimal dark sectors.

Summary

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