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Fundamental Physics from Gravitational Waves

Thursday, April 29, 2021 3:00 PM (1 hour)

Following the direct discovery of gravitational waves (GWs) by LIGO and Virgo, there are many opportunities to probe fundamental physics using GWs. These include using GWs from astrophysical sources to constrain the graviton mass and search for Lorentz violation, as well as searching for GWs from dark matter in merging neutron stars, from first-order phase transitions in the early Universe, and from loops of cosmic strings, as may be hinted by recent data from the NANOGrav pulsar timing array. The roles that could be played by atom interferometers measuring GWs in the mid-frequency band between LIGO/Virgo and LISA will be highlighted.

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