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Gravitational Wave Probes of Models with Extra U(1) Gauge Symmetries

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I will discuss new types of gravitational wave signatures which arise in extensions of the Standard Model with two U(1) gauge symmetries broken at high energy scales, focusing on the case when those symmetries are gauged baryon and lepton number. Such theories accommodate dark matter, leptogenesis, and the seesaw mechanism for neutrinos. The gravitational wave spectrum consists of contributions from first order phase transitions, cosmic strings and domain walls. The new signatures are within the reach of future experiments, such as Cosmic Explorer, Einstein Telescope, DECIGO, Big Bang Observer, and LISA.

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