

Unraveling the Particle World and the Cosmos at Berkeley—Workshop in Honor of Lawrence Hall and Hitoshi Murayama



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Baryogenesis with only the Standard Model CP violation

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Mesogenesis with a Morphing Mediator (3M) is a new proposal for baryogenesis and dark matter production in which, contrary to common lore, the Standard Model CP violation is sufficient to generate the entire primordial asymmetry of matter over antimatter. Furthermore, the dark sector dynamics of this mechanism produce gravitational waves that can be probed with current and future Pulsar Timing Arrays. 3M-baryogenesis is based on Mesogenesis mechanisms which leverage the CP violation in charged or neutral Standard Model meson systems. I will first give an overview of existing mechanisms of Mesogenesis (their respective signals and features), and discuss general ongoing and proposed search strategies (at colliders, neutrino detectors and more), before introducing the new 3M mechanism.

Title

Abstract

Presenter: ELOR, Gilly