

B-Mesogenesis: Baryogenesis and Dark Matter from B Mesons

Wednesday 22 September 2021 17:20 (25 minutes)

In this talk based on 1810.00880 and 2101.02706, I will present a new mechanism for Baryogenesis and Dark Matter production: *B-Mesogenesis*. Within the B-Mesogenesis paradigm, both the dark matter relic abundance and the baryon asymmetry of the Universe arise from the CP violating oscillations of B mesons and their subsequent decays in the early Universe. This mechanism would have distinctive experimental signals that I will discuss in detail: i) the new decay mode of B mesons into a baryon and missing energy, and ii) a positive semileptonic asymmetry in neutral B meson decays. I will discuss the reach of current collider experiments to these signatures, and I will show that a combination of measurements at Belle II, LHCb, ATLAS & CMS can fully test B-Mesogenesis.

Primary authors: ELOR, Gilly (University of Mainz); ALONSO-ÁLVAREZ, Gonzalo (McGill); ESCUDERO, Miguel (Technical University of Munich)

Presenter: ESCUDERO, Miguel (Technical University of Munich)

Session Classification: Astroparticle and cosmology

Track Classification: Astroparticle and cosmology