

Electroweak baryogenesis driven by an axion like particle.

Wednesday, 27 February 2019 14:00 (30 minutes)

An axion-like particle (ALP) offers a new direction in electroweak baryogenesis because the periodic nature enables it to trigger a strong first-order phase transition even if it is weakly coupled to the Higgs sector. This is essentially because the axion periodicity naturally allows the structure of phase transition to be insensitive to the axion decay constant that determines the strength of axion interactions. Furthermore, the axion can serve as a CP phase relevant to electroweak baryogenesis without causing any problem with respect to the recent measurement of an electron EDM. Depending on the scale of f , non-local or local generation of baryon asymmetry scenarios can be realized. In this talk, I will introduce the basic set-up of the axionic electroweak baryogenesis, and discuss allowed parameter ranges of the axion mass and the implications for future ALP studies.

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