

## Gravitational waves and collider probes of extended Higgs sectors

*Wednesday, 13 November 2019 12:20 (5 minutes)*

Extended scalar sectors often emerge in models motivated by the electroweak hierarchy problem. In particular, the scalar triplet extension of the SM is interesting because the triplet decay is very constrained at the renormalizable level. Therefore, effective operators with a low cutoff make the triplet components decay promptly, leading to a drastically different collider phenomenology. In this talk, I will discuss the reach of ongoing searches at the LHC, as well as projected bounds for the HL-LHC. The non-minimal scalar sector also modifies the electroweak phase transition, which can be first-order and produce sizable gravitational waves. Therefore, I will also discuss the possibility of electroweak baryogenesis in this model and constraints from gravitational waves observatories.

**Primary author:** RAMOS, Maria (LIP)

**Presenter:** RAMOS, Maria (LIP)

**Session Classification:** Lightning talks