

# Neutron-antineutron oscillation as a probe of baryogenesis

Friday, 24 September 2021 10:05 (15 minutes)

Neutron-antineutron ( $n\text{-}\bar{n}$ ) oscillation is a baryon number violating process that will be probed at an unprecedented sensitivity in near future experiments at ESS and DUNE. We study potential impacts of the  $n\text{-}\bar{n}$  oscillation mechanism on the baryon asymmetry of the Universe. Using an effective field theory framework, as well as a simplified model for one of two possible UV-complete topologies of the  $n\text{-}\bar{n}$  operator, we connect a potential  $n\text{-}\bar{n}$  oscillation discovery to baryogenesis, and show the overlap with resonant production at the LHC. We find that successful baryogenesis can be realised in regions of parameter space that are currently unexplored but will be probed by future  $n\text{-}\bar{n}$  oscillation experiments.

## Do you wish to attend the workshop on-site?

yes

## Summary

**Primary authors:** HATI, Chandan (Technische Universität München, James-Franck-Straße 1, D-85748 Garching, Germany); HARZ, Julia (Technical University of Munich (TUM)); FRIDELL, Kåre (Technical University of Munich)

**Presenter:** FRIDELL, Kåre (Technical University of Munich)

**Session Classification:** Parallel Sessions: Cosmology

**Track Classification:** Cosmology & Astroparticle Physics