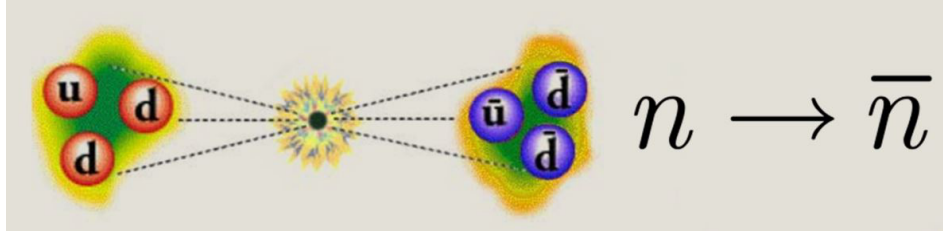


Theoretical Innovations for Future Experiments Regarding Baryon Number Violation, Part 1



Contribution ID: 13

Type: **Oral Presentation**

Probing High Scale Theories with $n - \bar{n}$ Oscillations

Tuesday, 4 August 2020 13:30 (30 minutes)

$n - \bar{n}$ oscillations can be used to probe theories at a high energy scale, such as grand unified theories. In this talk I will illustrate this with two examples. In the first example, $n - \bar{n}$ oscillation arises in a left-right symmetric model realized near the GUT scale that provides a solution to the strong CP problem. The $n - \bar{n}$ oscillation time is closely tied to neutrino masses, and is expected to be in the range of $10^8 - 10^{10}$ sec. In the second example, $SO(10)$ grand unified theory breaks to the standard model directly, but leaves behind a color sextet scalar field at the TeV scale. This scalar helps with unification of gauge couplings and leads to $n - \bar{n}$ oscillations, which is closely tied to baryon asymmetry generation. For typical values of the model parameters, $\tau_{n-\bar{n}} \sim 10^9 - 10^{10}$ sec. is obtained.

Contribution Title

Presenters: BABU, K.S. (Oklahoma State University); BABU, Ks (Oklahoma State)