

## Toward the first experiments of T-violation search in neutron-induced compound nuclear reaction

The CP violation beyond the standard model is not only physically interesting on its own, but also a key for understanding the baryon asymmetry in the current universe. In a low energy region, instead of directly probing it, many efforts to search the violation of time-reversal symmetry (T-violation) continue in various physics systems with high sensitivity. Among those, neutron-induced compound nuclear reactions are interesting because the enhancement of parity-nonconservation effect (PNC) has been found in many compound nuclear states. Particularly, in the neutron resonant absorption in Lanthanum nuclei (La) at 0.75 eV, the enhancement is so great that it reaches  $10^6$ . This enhancement for the PNC can be also expected for the T-violation from recent experimental results and theoretical calculations. Additionally, this system is sensitive to a different physical parameter indicating the magnitude of the T-violation from the neutron EDM, so that it is also attractive in terms of a different search region. Thus, the NOPTREX collaboration is planning the T-violation search with La targets as a first attempt. One big issue is the development of a polarized La target because polarized targets except for proton and deuteron have not been realized yet as a practical use. In this presentation, we will introduce the overview of the first stage of the T-violation experiment, Phase-I, and report current status in the NOPTREX project.

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