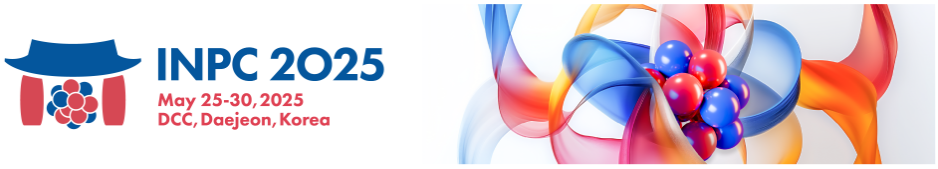

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Probing physics beyond the TeV scale via nuclear beta decays

Wednesday, 28 May 2025 11:30 (30 minutes)

Precision measurements of observables that can be accurately predicted by the Standard Model (SM) can be used to search for physics beyond it. One of the most amazing features of the SM is the left-handedness of the charged part of the Weak Interaction. In the presence of new interactions beyond the SM, an interference effect takes place between these and the SM currents. Beta spectra measured with high precision (at the level of a part per thousand or better) allow sensitivities for new physics at the 1-TeV scale and beyond. I will describe the status of the He6-CRES experiment aiming at measuring spectra from 6He and 19Ne with high precision, using a new technique called cyclotron radiation emission spectroscopy (CRES). The technique is based on determining the beta energies from the cyclotron frequency, which can be measured from the microwave radiation that betas produce when the decays occur within a magnetic field.

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