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CREScint: characterization and advances

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The PERC (Proton and Electron Radiation Channel) experiment is part of the new generation of high-precision measurements of angular correlations in neutron beta decay. Among the different approaches, the CRES (Cyclotron Radiation Emission Spectroscopy) technique is a perfect match for PERC, given it provides a highly precise frequency-based electron spectroscopy and it is non-destructive. The CREScint experiment is a proof-of-principle experiment, aiming to combine the CRES-technique with the signal amplification qualities of a RF cavity, naturally compensating for the extremely weak power of the expected radiation pulses. In order to do so, a proper characterization of the cavity, electron beam and magnetic field, as well as their interactions, must be performed.

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