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【705】 The PERC facility - prospects of high-precision neutron beta decay experiments

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Neutron beams enable a large variety of studies in fundamental physics research. In particular, neutron beta decay allows for a detailed study of the weak interaction within the standard model of particle physics and possible extensions beyond it. Among other observables, a number of correlation coefficients may be determined, providing a complementary way to high-energy accelerator experiments.

PERC, a new facility for the high-precision experimental study of neutron decay is currently constructed. It consists of a specifically tailored superconducting magnet system to guide the charged neutron decay products and a special neutron guide arrangement to conserve the initial neutron phase space density. The concept and design of the facility, various components, and information of the current status will be presented.

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