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Neutron optics for neutron beta decay studies with Proton Electron Radiation Channel (PERC)

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The PERC experiment is currently under construction at the new beam port MEPHISTO at the FRMII. It aims to measure correlation parameters in neutron beta decay with an accuracy improved by one order of magnitude to a level of 10^{-4} .

The author will present an overview of the demanding experimental constraints for this precision experiment, concerning the beamline with its' neutron optical components. In the framework of this experiment, the author will present the current status of the development of a completely non-depolarizing supermirror coating from Copper/Titanium. First tests were made in 2014 by N.Rebrova in the scope of her PhD-thesis. Based on the work of A. K. Petukhov et. al., the author will also present the results for a solid-state neutron polarizer made from Iron/Silicon coating.

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