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Devices for Correcting Phase Aberration for Longitudinal MIEZE at RESEDA

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The RESEDA instrument, situated at the FRM II facility, operates as a resonant spin-echo spectrometer utilizing the MIEZE (Modulated Intensity with Zero Effort) technique in a longitudinal geometry. While RESEDA offers access to a broad range of energy scales, its optimal resolution for momentum-transfer vectors is primarily concentrated at small scattering angles. Recent advancements have demonstrated the extension of the accessible scattering angle range through the incorporation of Magnetic Wollaston Prisms (MWPs) [1]. However, MWPs are not suited for longitudinal MIEZE. Consequently, there is a pressing need to develop a similar device capable of providing spatial-intensity modulation capabilities within the L-MIEZE geometry. In this contribution, we explore various magnetic coil configurations designed to generate the required field gradient and present the results of numerical simulations.

[1] F. Li, J. Appl. Cryst. (2022). 55, 90-97

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