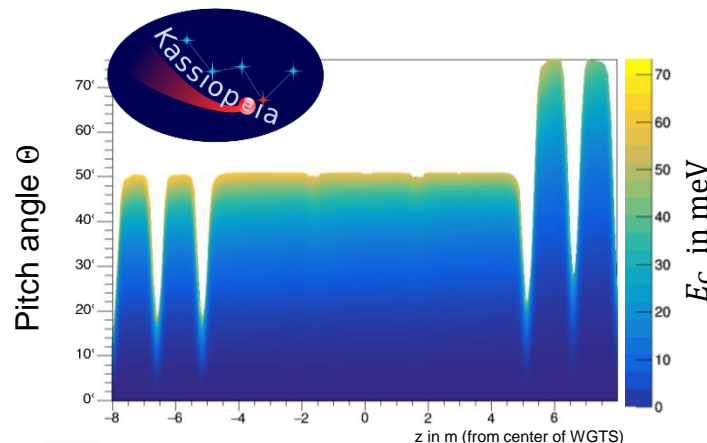
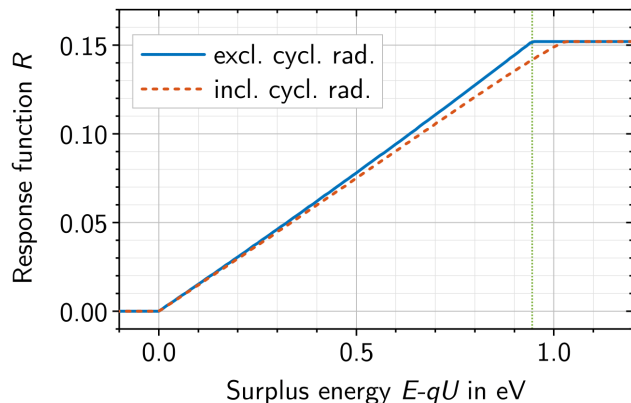


Poster #15: Modeling of the response function of the KATRIN experiment

J. Behrens and L. Schimpf for the KATRIN collaboration

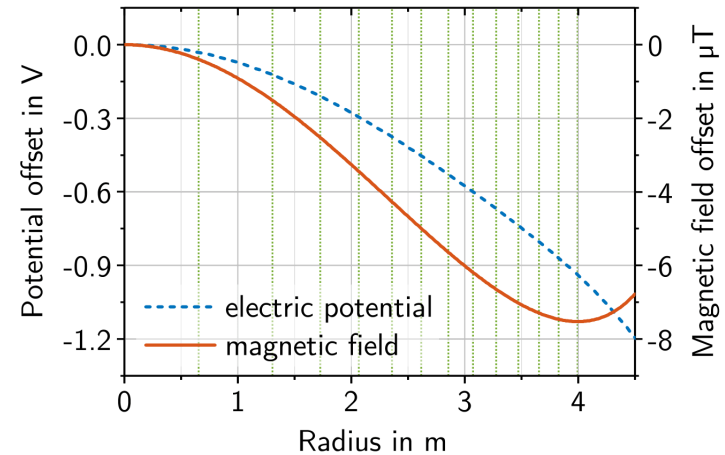
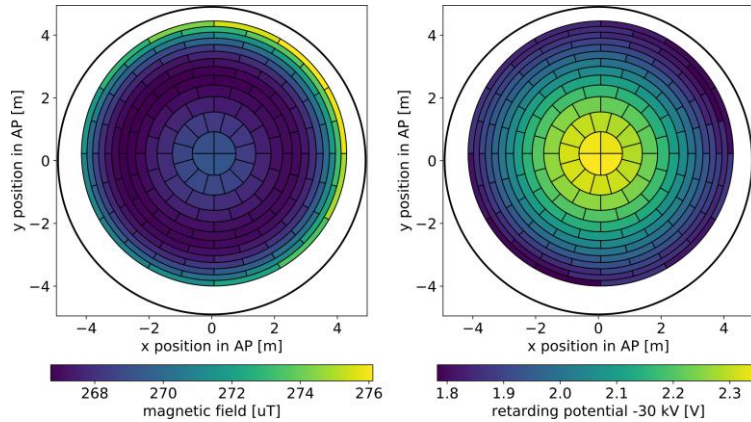


- Analytical transmission function given by MAC-E filter principle
- Influenced by many parameters such as magnetic and electric field in the spectrometer as well as the emission of cyclotron radiation

Emission of cyclotron radiation

- Cyclotron radiation is depending on the position and the pitch angle of the emitted electron
- If effect on transmission function is known, it can be considered in data analysis, as successfully demonstrated during ^{83m}Kr -campaign.

Analyzing plane of the MAC-E filter



- Field inhomogeneities in analyzing plane lead to radial dependencies (due to large spectrometer size)
- U_a, B_{\min} computed by detailed simulations using full beamline with 3D main spectrometer geometry
- Near future: Investigation of analyzing plane properties by dedicated electron source