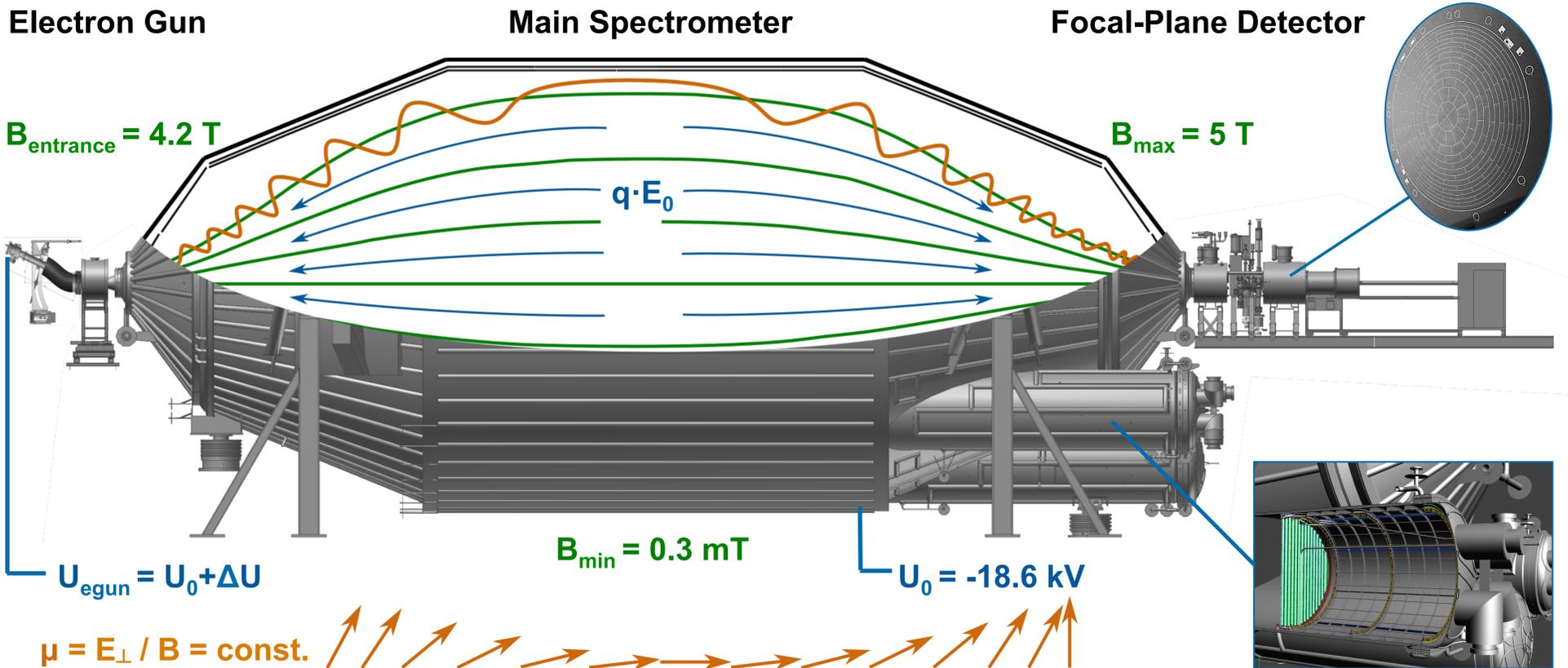


Commissioning of the KATRIN Spectrometer-Detector-Section

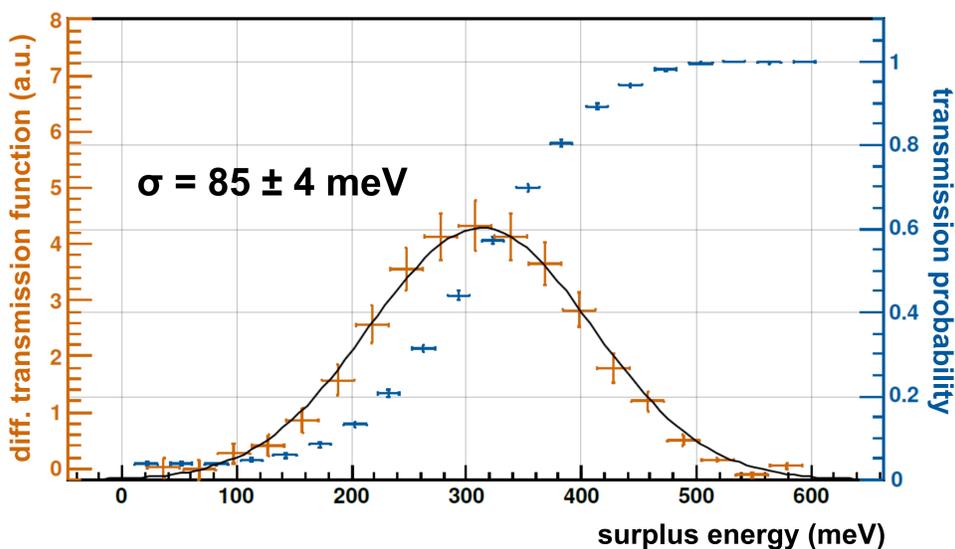
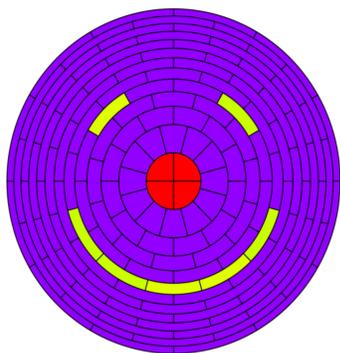
Nancy Wandkowsky (KIT)



- $\mu = E_{\perp} / B = \text{const.}$
- Electron energy analysis by electrostatic retarding spectrometer based on MAC-E (Magnetic Adiabatic Collimation with Electrostatic) filter principle
- Segmented Si-PIN diode detector allows for radial analysis
- Four month long measurement phase to study transmission properties and background sources
- **50% of the final KATRIN beamline successfully tested**

Transmission Studies

- Spectrometer transmits electrons as expected
- Width σ dominated by line width of electron gun
- Reproducibility of results
- **meV energy resolution at 18.6 keV**



Radon-induced Backgrounds

- Stored electrons from Radon decays induce background
- IN_2 -cooled baffle for passive background reduction
- Background reduction by >50%
- **Remaining μ -induced background of 0.4 cps**

