



Karlsruhe Institute of Technology

# **Towards Quantum Sensor Arrays for a Next-Generation Neutrino-Mass Measurement using Tritium**

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#### **Neutrino-Mass Measurement**

### **KATRIN** and beyond (KATRIN++)





**Absorber:** Energy absorption by

Pick-up coil: Transfer of magnetization



#### **Cold Chicane**

#### **Operation regime of MMCs**



Sufficiently sensitive ( $\delta M/\delta T$  high) for low magnetic fields (10s of mT) and very low temperatures (a few mK)

Direct interface between source at room temperature and detector array in mK cryostat

 $\rightarrow$  Modification of KATRIN beamline behind main spectrometer required

 $\rightarrow$  Cold chicane





## **ELECTRON** project

Cryogenic set-up for measurement of Kr<sup>83m</sup> spectrum with MMCs

Gradiometric MMC pixels



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