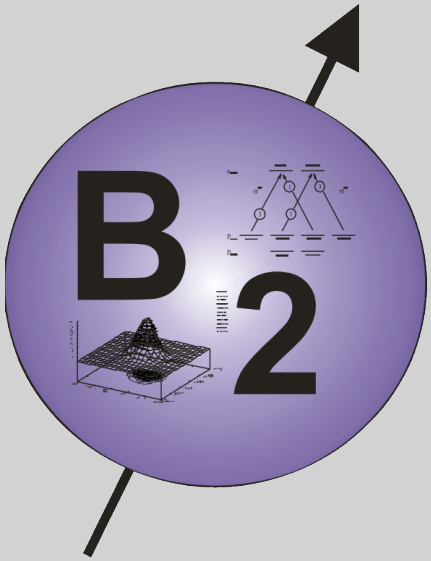


Photoinjectors @ Mainz

Stimulus Address

JOHANNES GUTENBERG UNIVERSITÄT MAINZ

Jennifer Trieb

Institut für Kernphysik

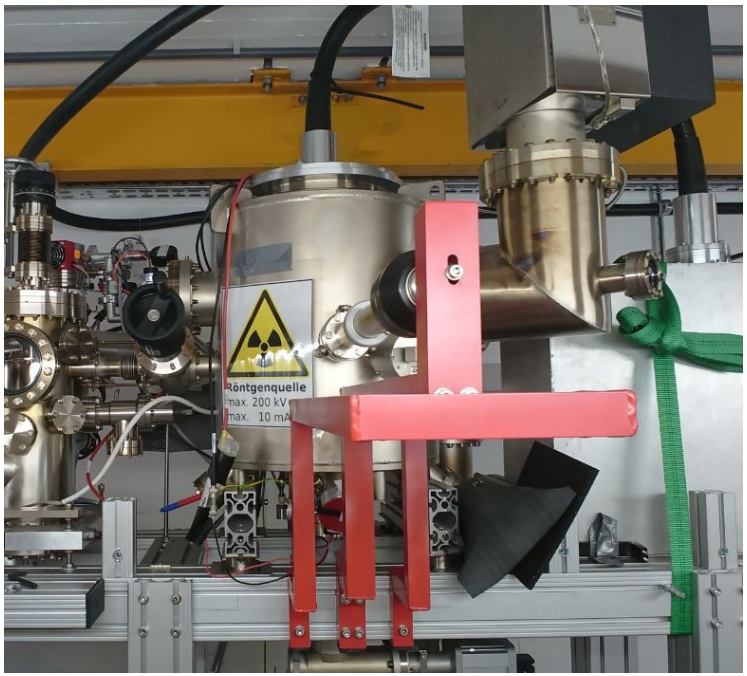
10th July 2023

PRISMA+

ACCELENCE

Two types of photoguns

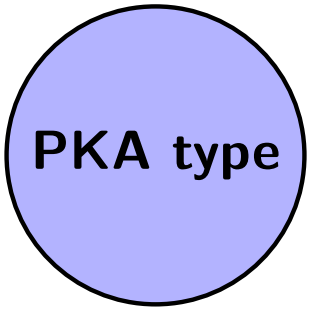
PKA-Type



STEAM-Type

Comparision

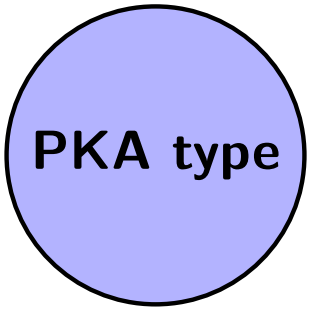
operation @100 keV



split insulator

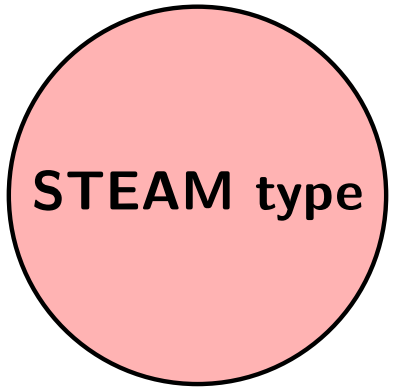
Comparision

operation @100 keV



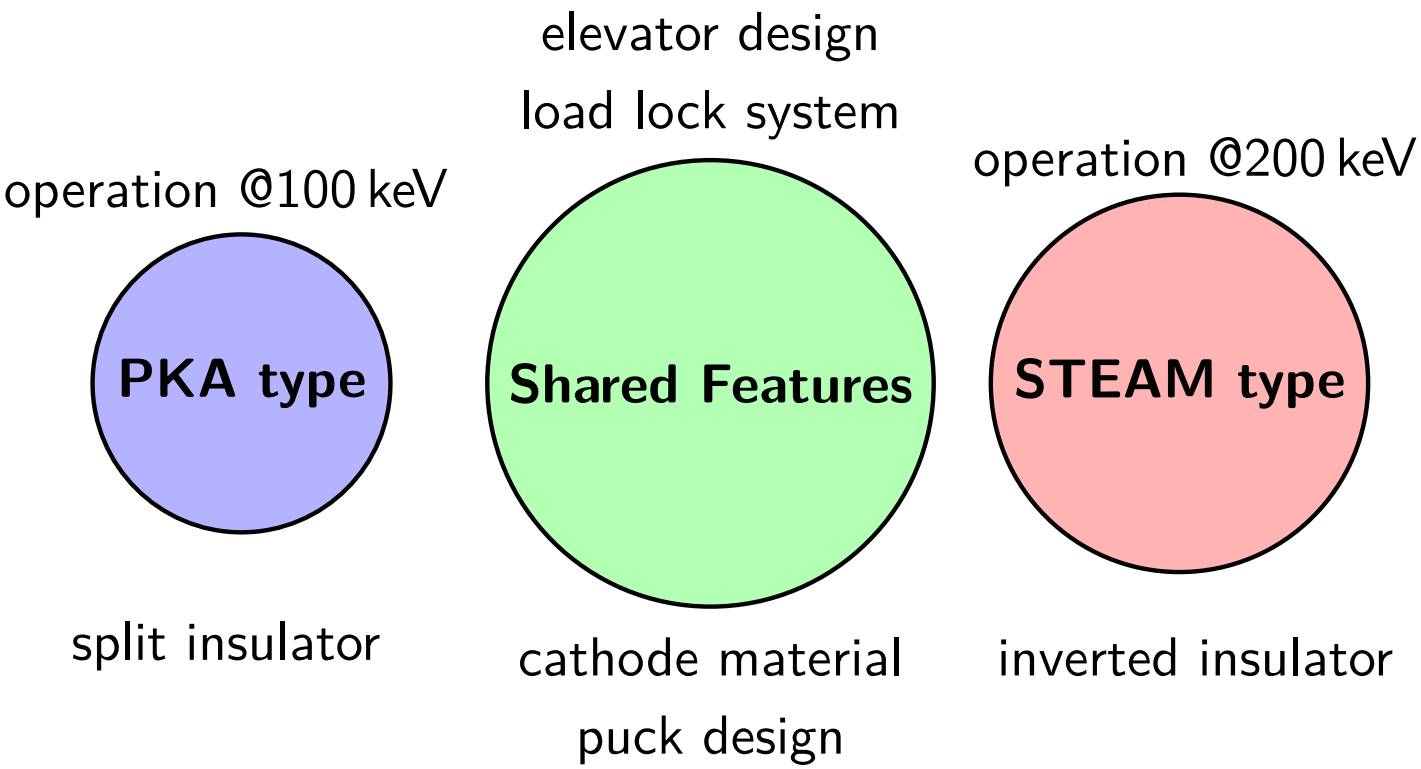
split insulator

operation @200 keV

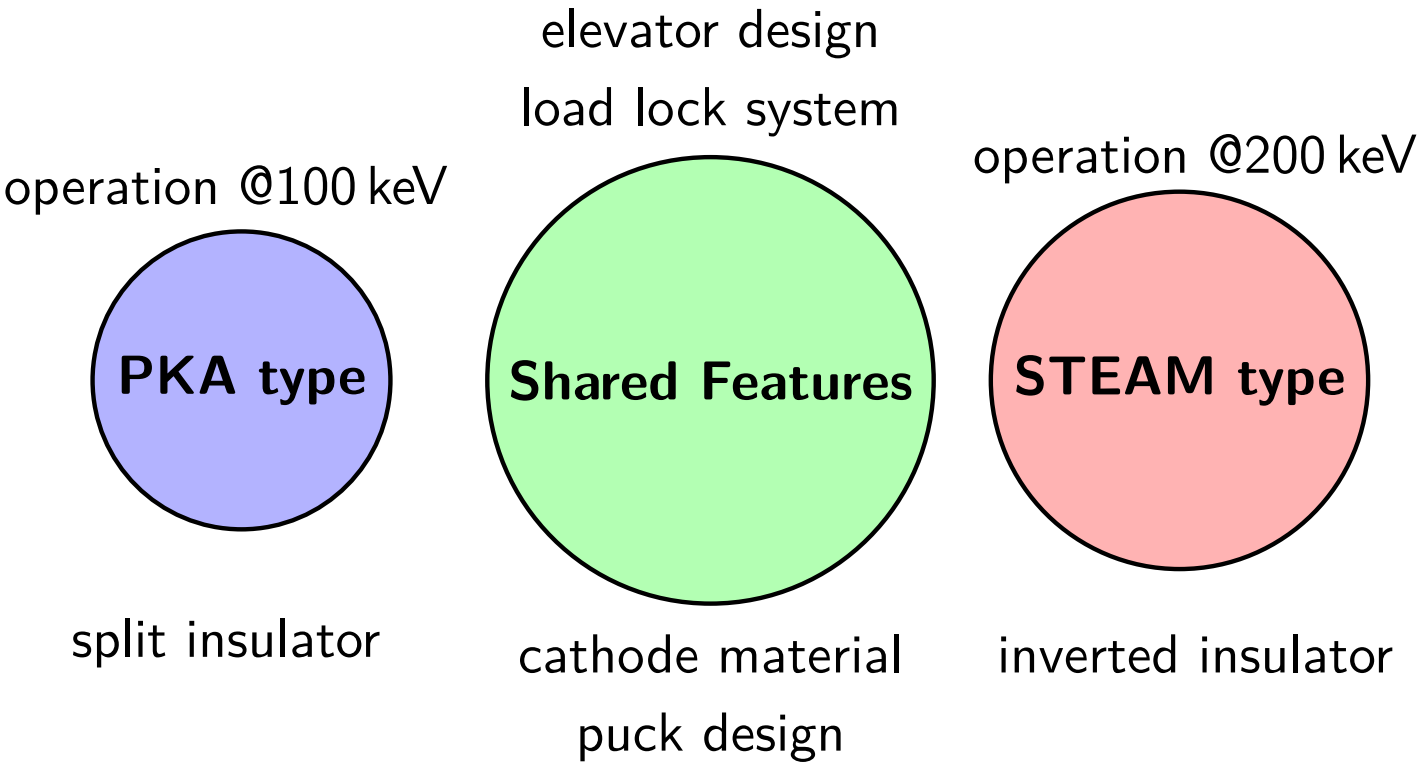


inverted insulator

Comparision



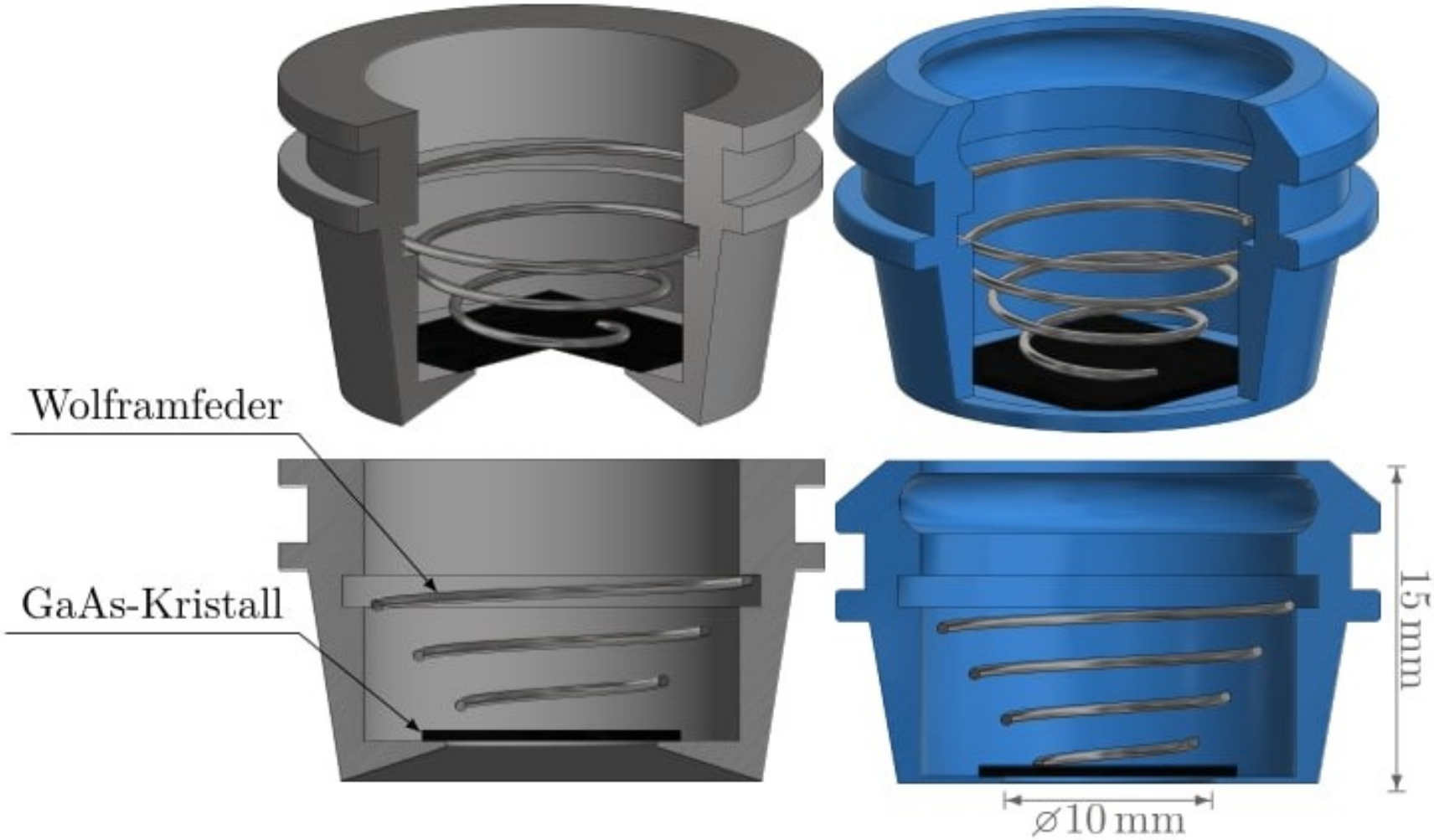
Comparision



PKA: K. Aulenbacher, C. Nachtigall, et al., *Nuclear Instruments and Methods in Physics Research Section A: Accelerators Spectrometers Detectors and Associated Equipment* **1997**, *391*, 498–506

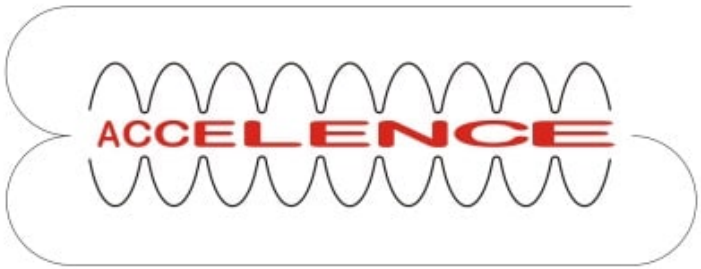
STEAM: S. Friederich, K. Aulenbacher in Proc. IPAC'15, JACoW Publishing, Geneva, Switzerland, pp. 1512–1514

Puck design



Source: S. Friederich, PhD thesis, Johannes Gutenberg-Univeristät Mainz, **2019**

Thank you very much for your attention!



CAD STEAM

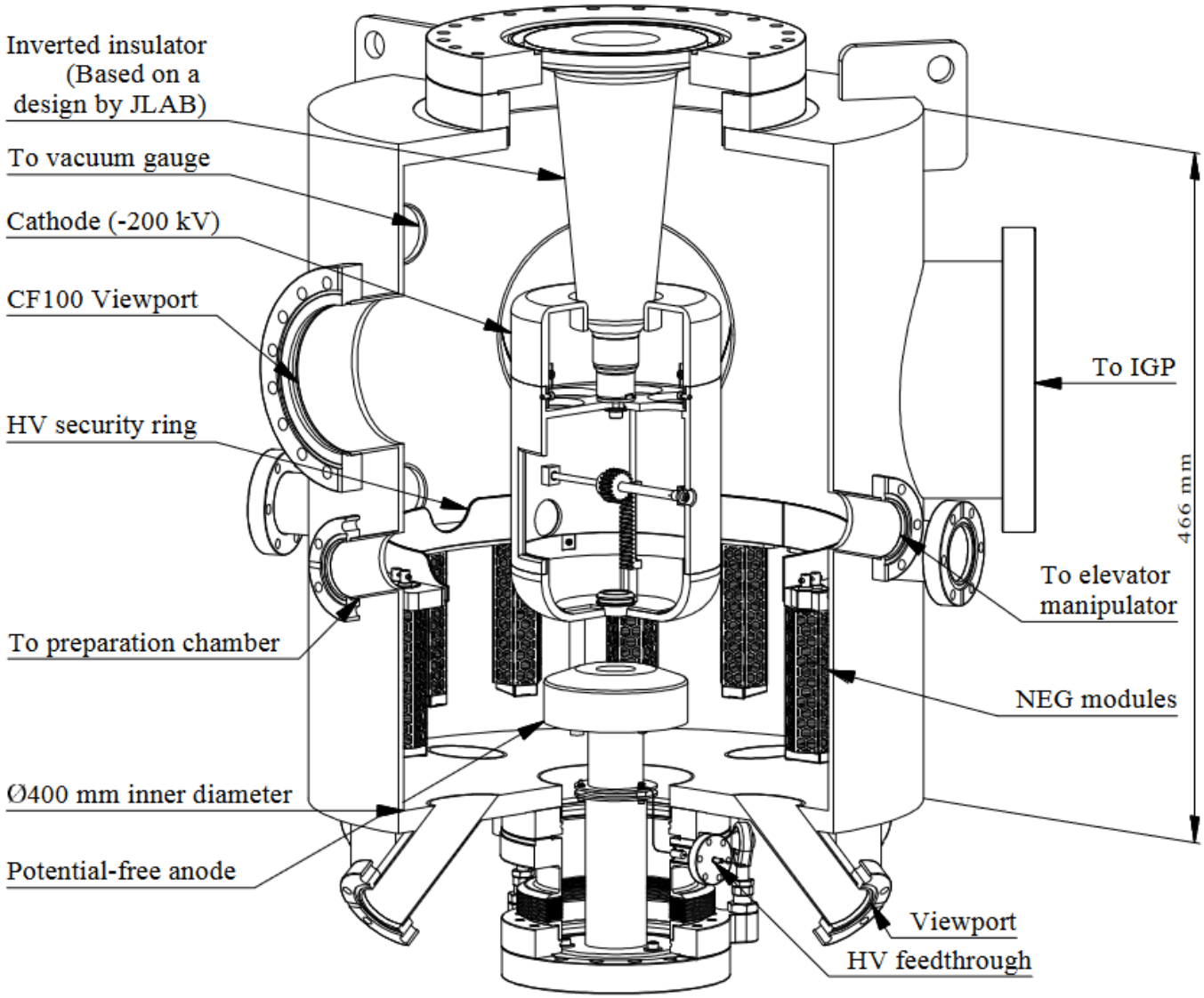
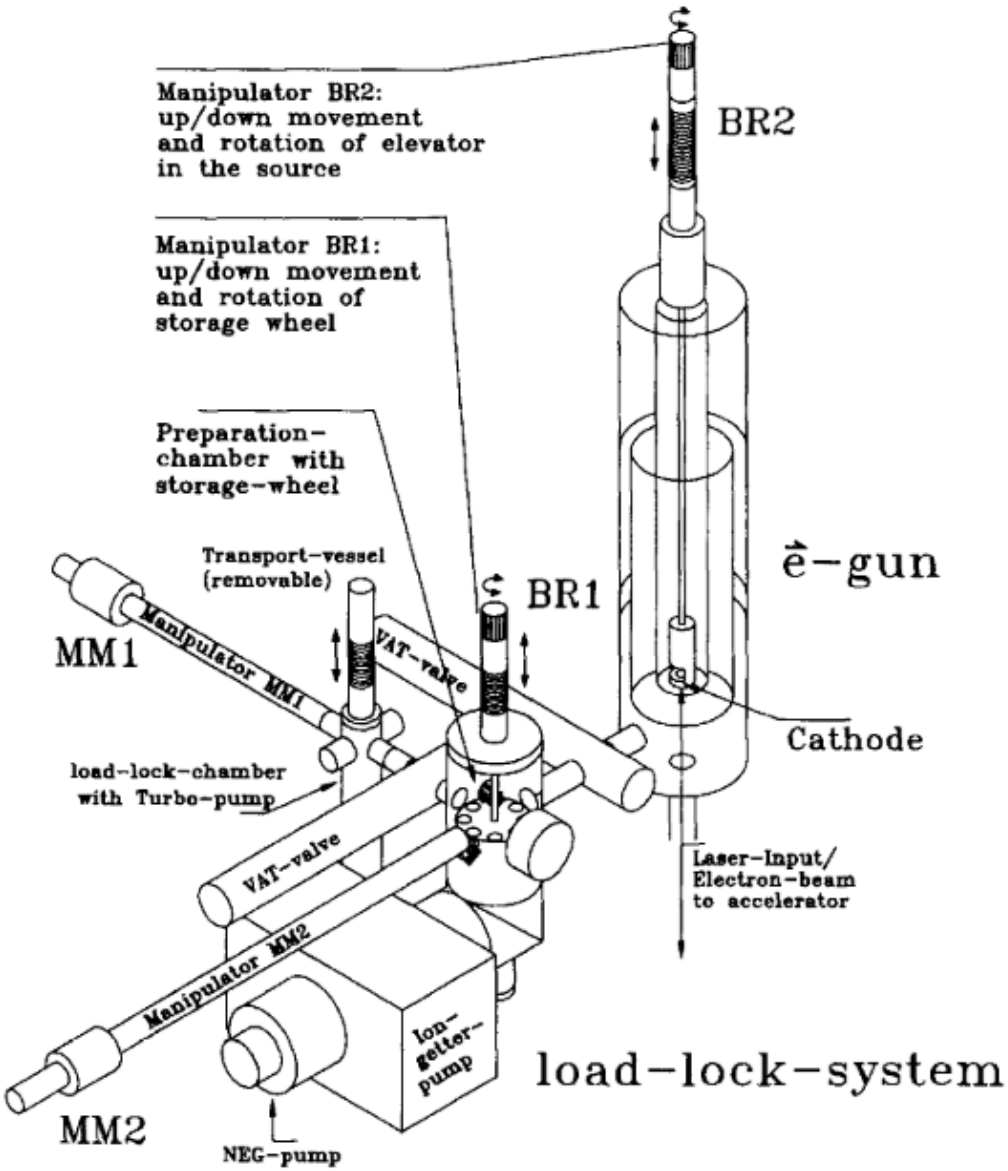


Figure 1: CAD-model of the Small Thermalized Electron source At Mainz (STEAM).

CAD PKA


Manipulator BR2:
up/down movement
and rotation of elevator
in the source
BR2
Manipulator BR1:
up/down movement
and rotation of
storage wheel
Preparation-
chamber with
storage-wheel
Transport-vessel
(removable)
BR1
ê-gun
MM1
Manipulator MM1
VAT-valve
Cathode
load-lock-chamber
with Turbo-pump
VAT-valve
Laser-Input/
Electron-beam
to accelerator
Manipulator MM2
Ion-
getter-
pump
load-lock-system
MM2
NEG-pump

PKA Electrode

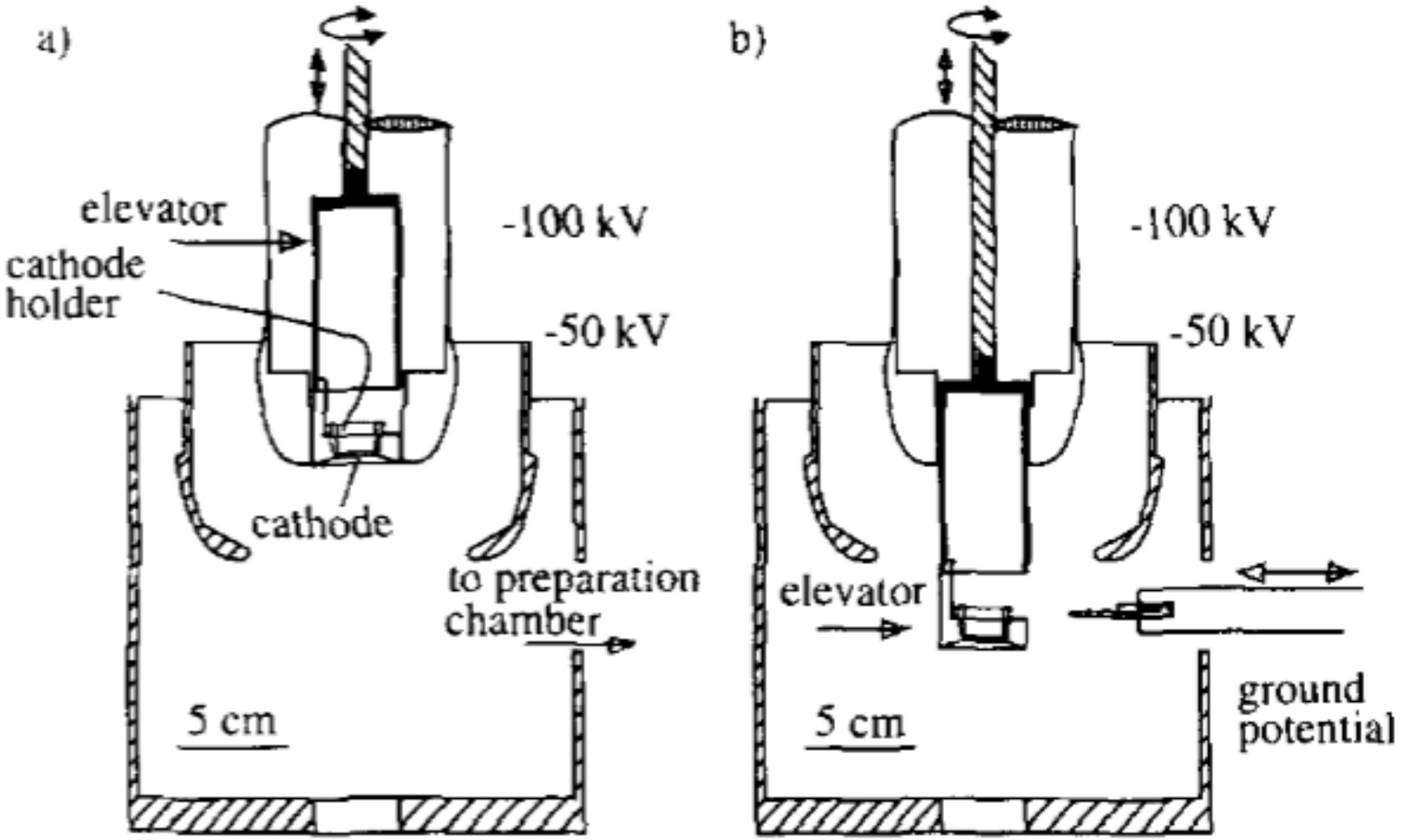


Fig. 1. (a) Section through the electrode configuration of the 100 keV electron gun; (b) elevator in down position.