

# Status Report

## 100 keV DC Gun Test Stand

September 2, 2005

# Gun Test Stand Status

- Since the last meeting
  - Zoom optics resolution determined
    - SLS internal note to be published soon → <http://slsbd.psi.ch/pub/>
  - Installation of hardware completed
  - $10^{-6}$  mbar leak at the weld seam of a bellow from VAb GmbH
    - weld seam redone in house
  - $10^{-8}$  mbar leak in the insulator of the SMA feedthrough after bake-out
    - attempt to weld in another SMA feedthrough failed
    - SMA feedthrough sealed with silicon, withstood second bake-out
    - new cathode cone design with removable CFI6/CF40 feedthroughs
- Ongoing
  - ZrC single tip: thermionic emission
  - ZrC single tip: anode electron bombardment
  - HV testing
  - Diagnostics testing
  - Installation of first FEA with proper cathode electrode
  - Installation of new cathode cone

# Installation Completed



# Gun Test Stand Status

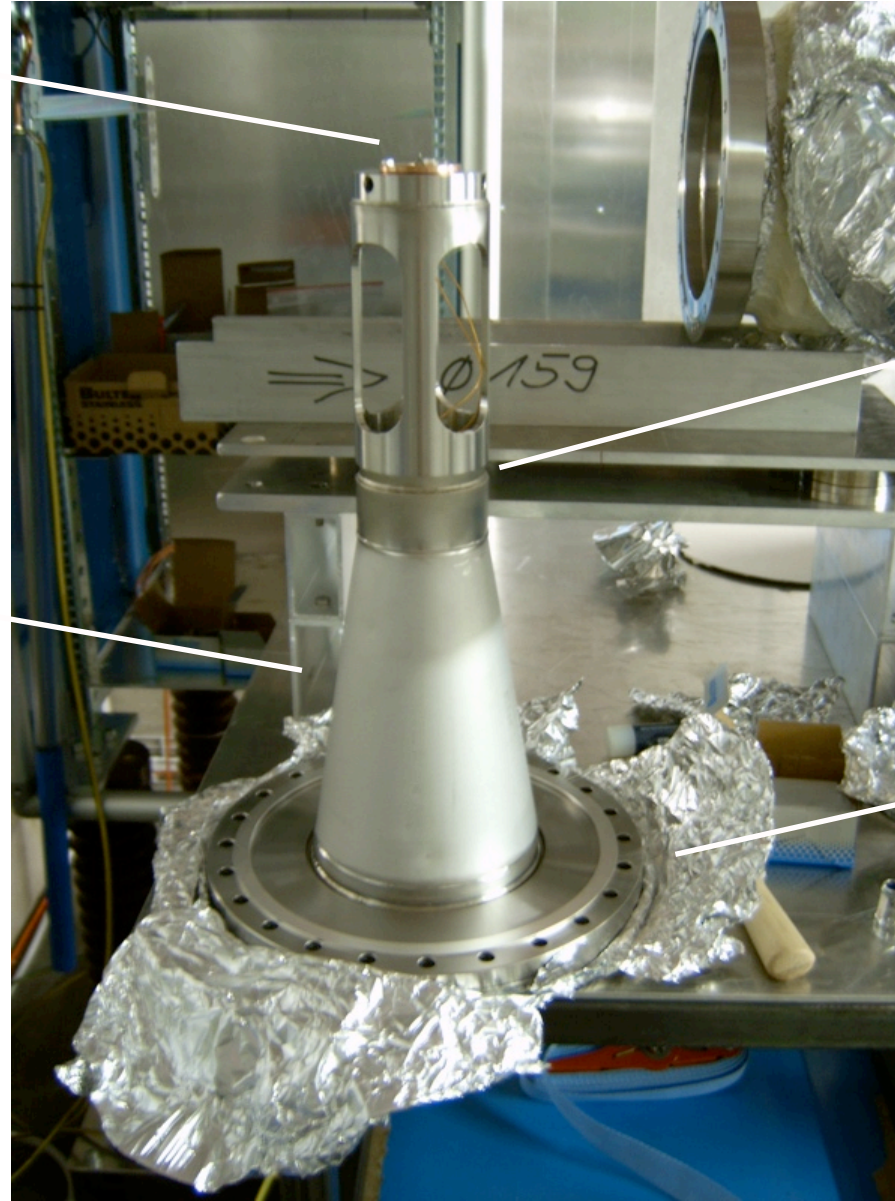
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# Current Cathode Cone Design

Cathode  
mount

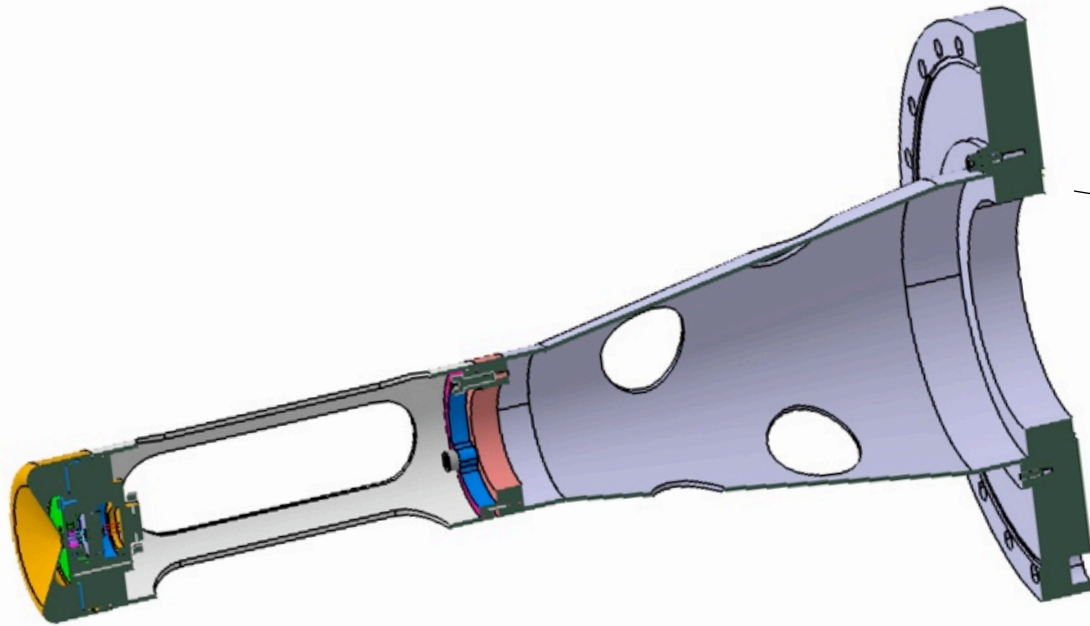
Cone



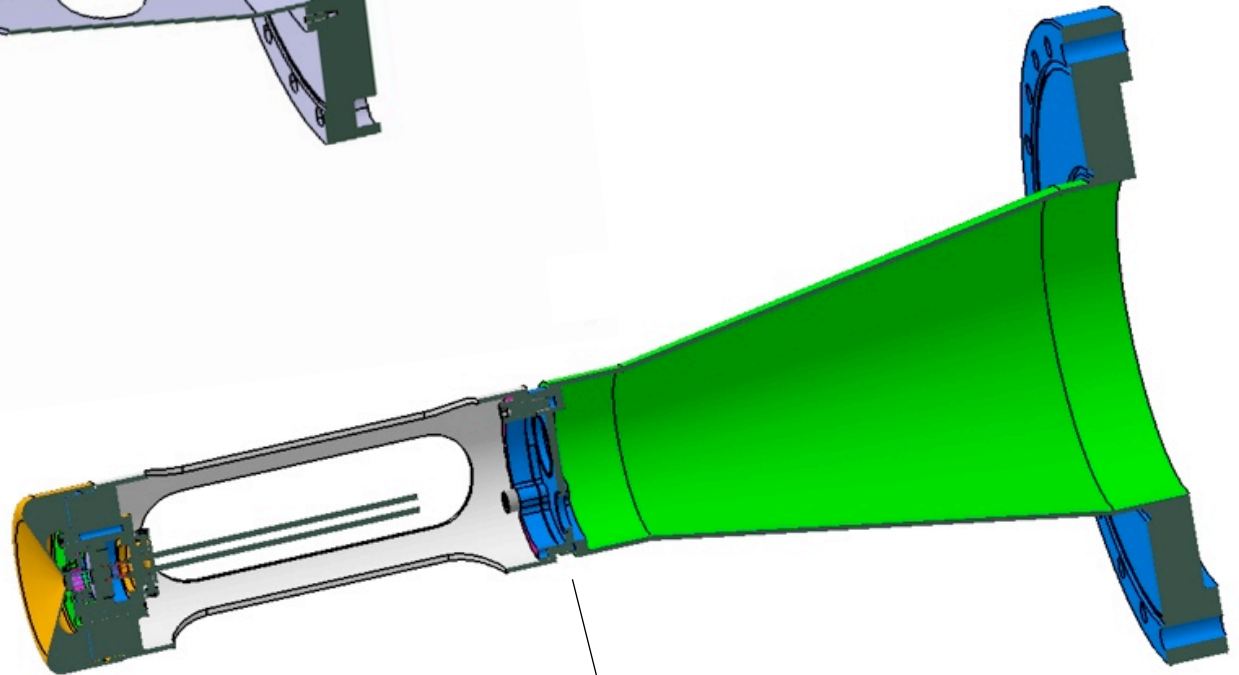
Custom  
welded  
feedthroughs

CF200 flange

# New vs. Old Cathode Cone Design



CFI100 flange for mounting  
standard CFI 6/40 feedthroughs



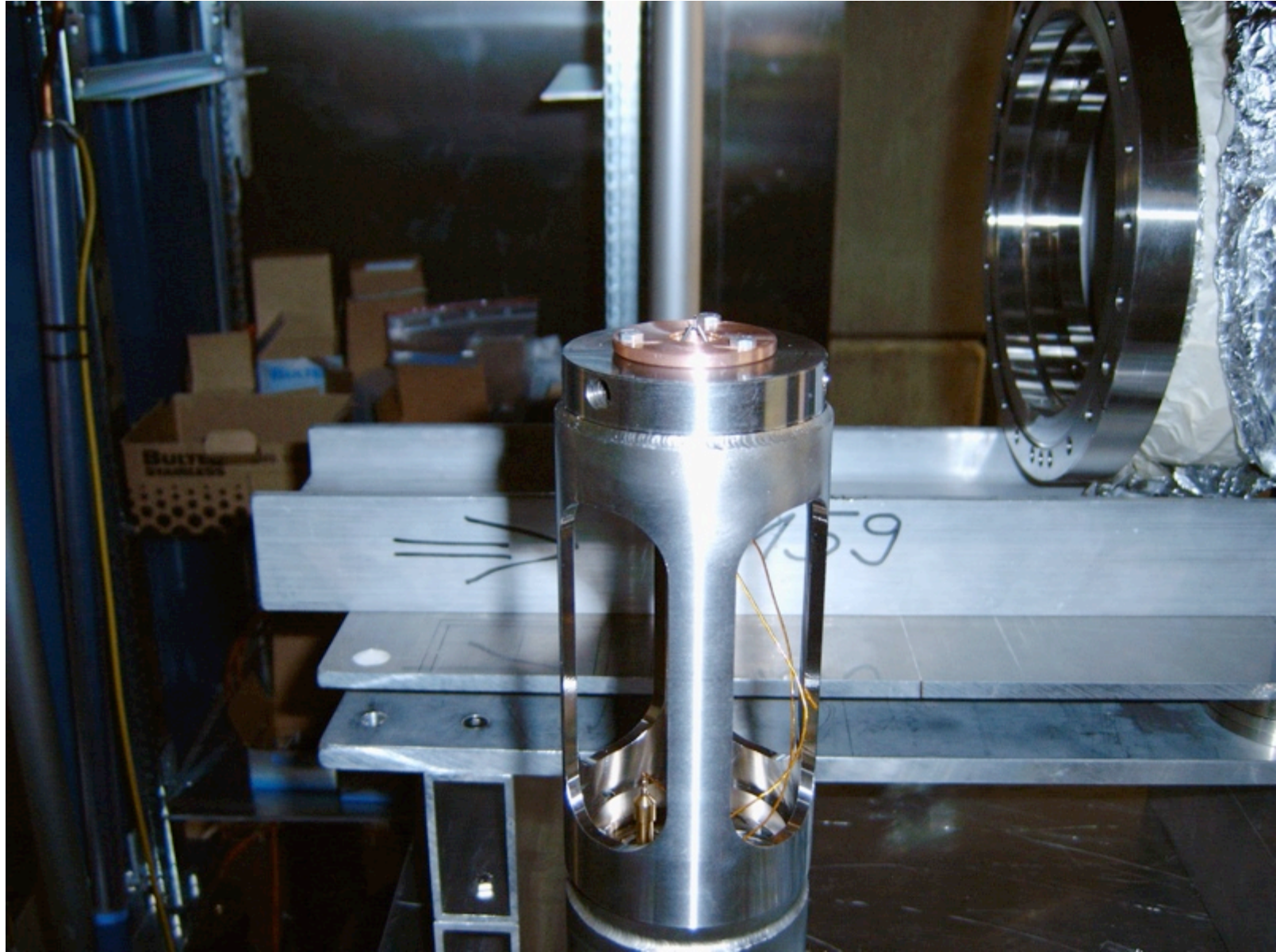
Custom welded  
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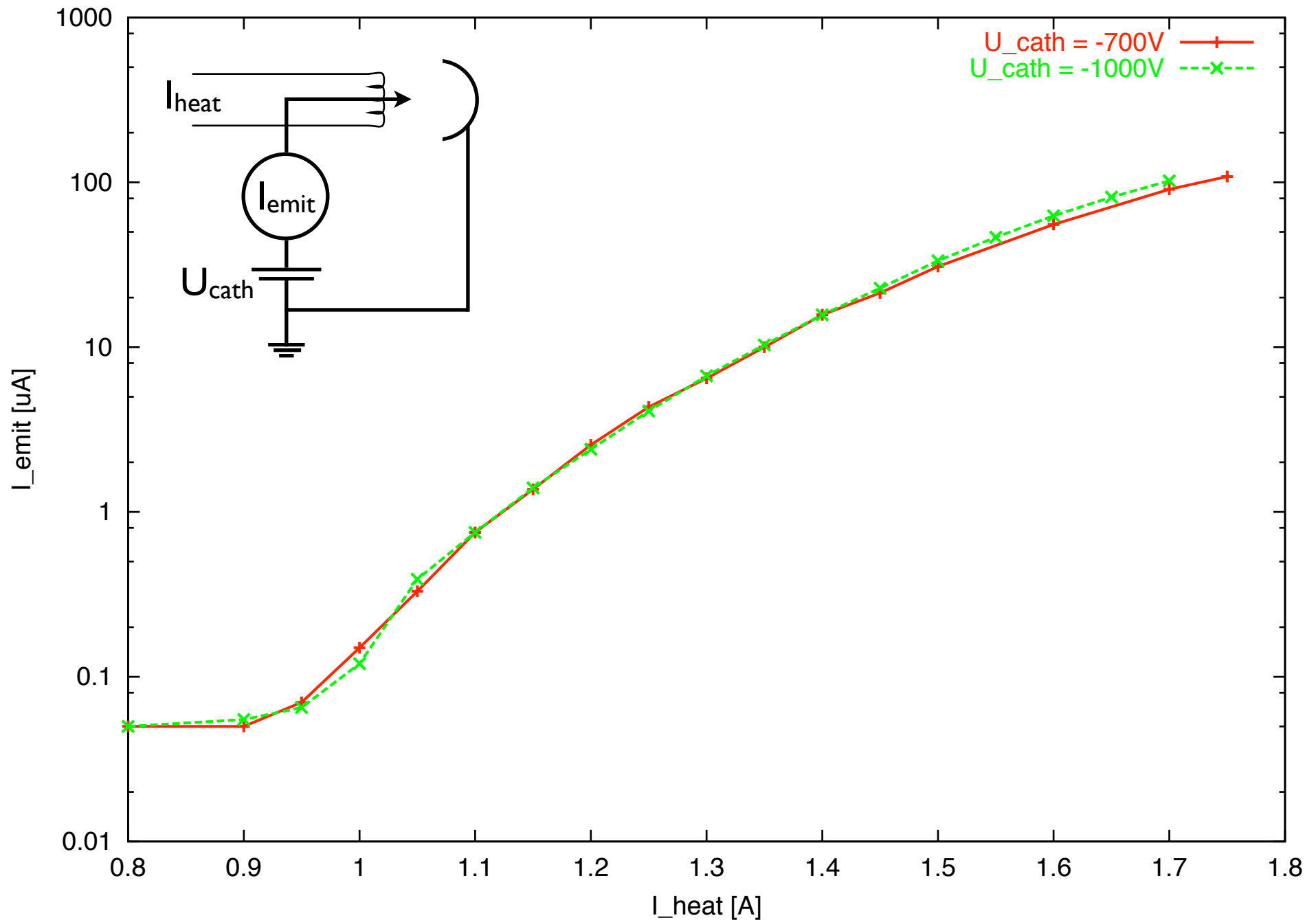


# ZrC Single Tip





# Thermionic Emission from ZrC Single Tip



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# Cathode Electrode

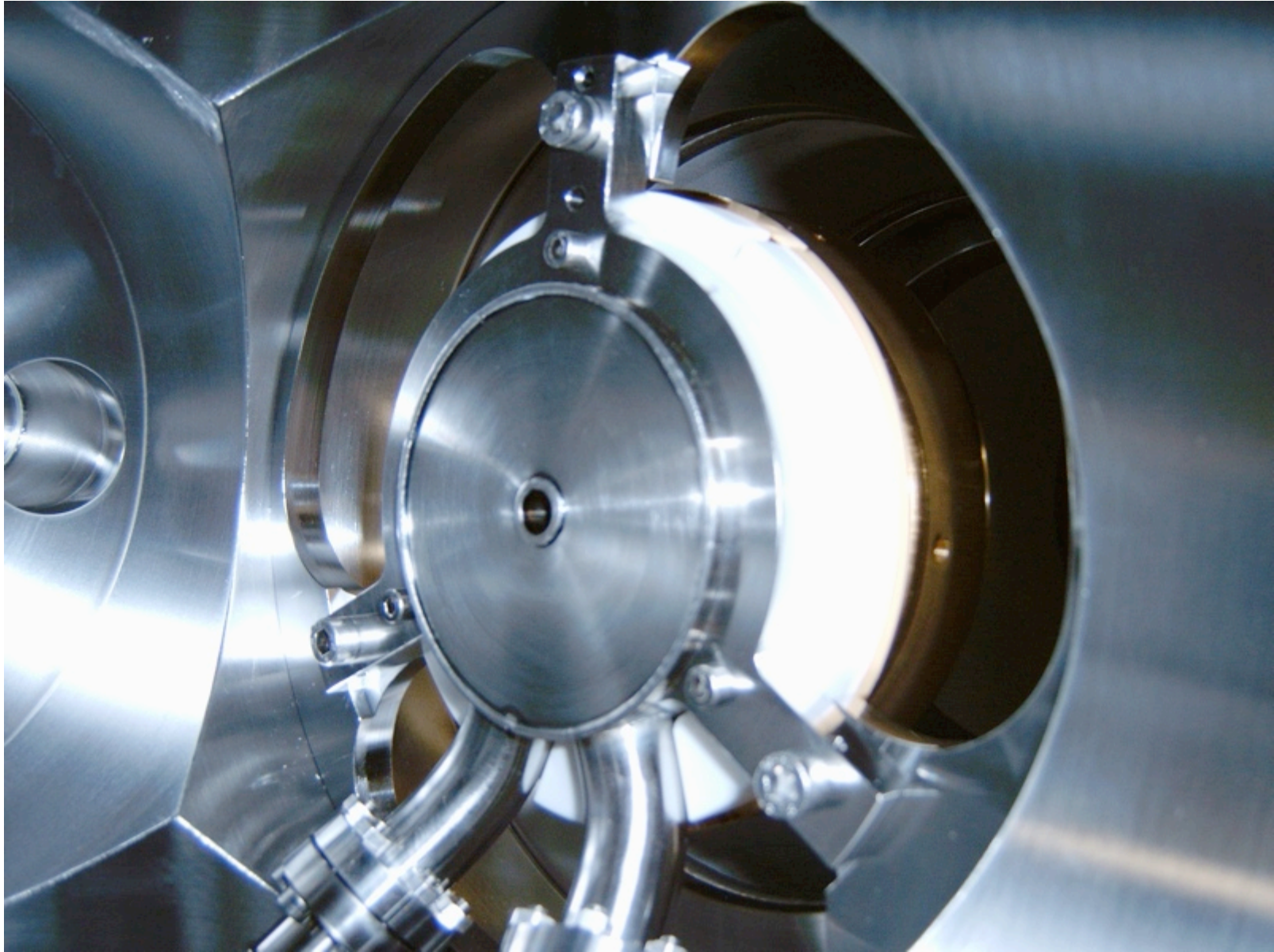


# Anode





# Solenoid



# Solenoid with Faraday Cup, YAG Screen and Slit Array

