Preliminary research on an electron beam setup for the QUAK experiment

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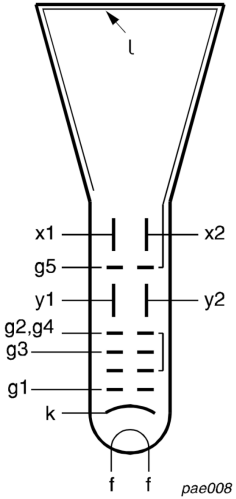
Overview

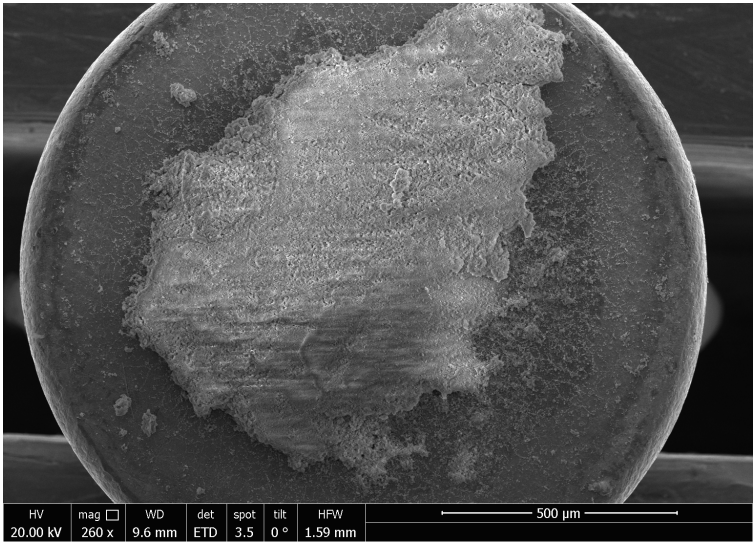
Characterization

- Model Heerlen D14-363GY/123
- Voltage 2 kV
- Filament heating voltage $\approx$6 V
- Metal oxide cathode with barium-, strontium-, and possibly aluminum-oxide

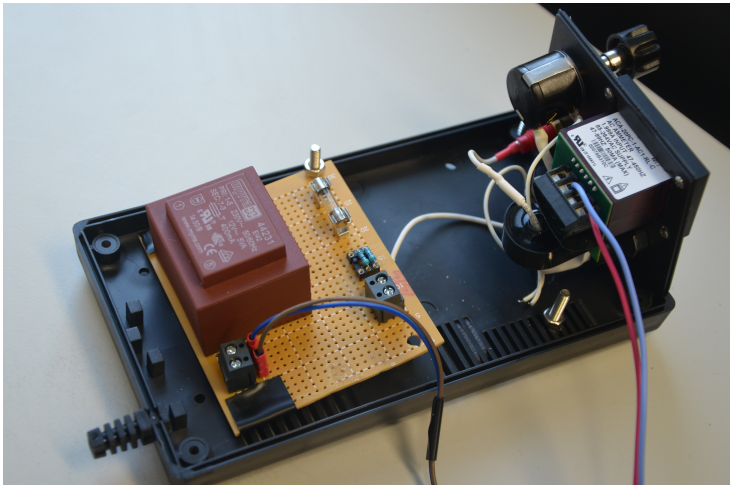
CRT



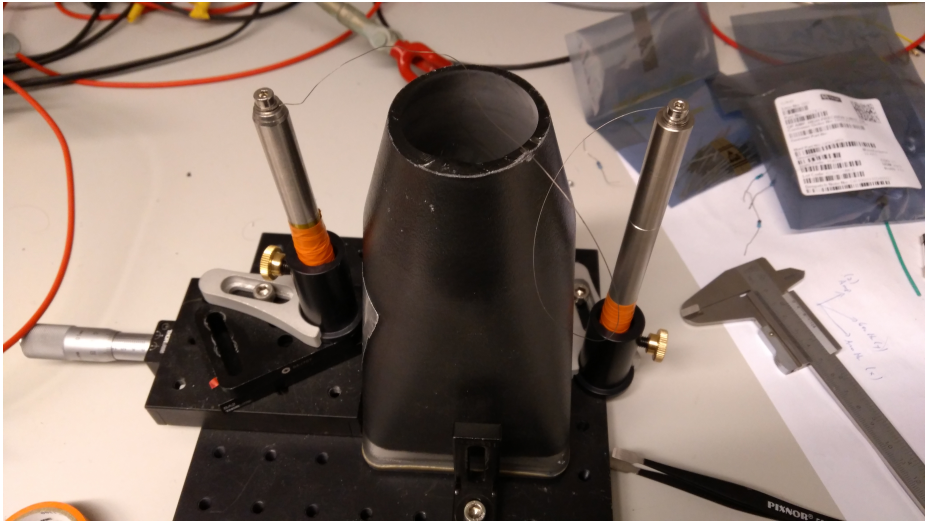
Cathode SEM image



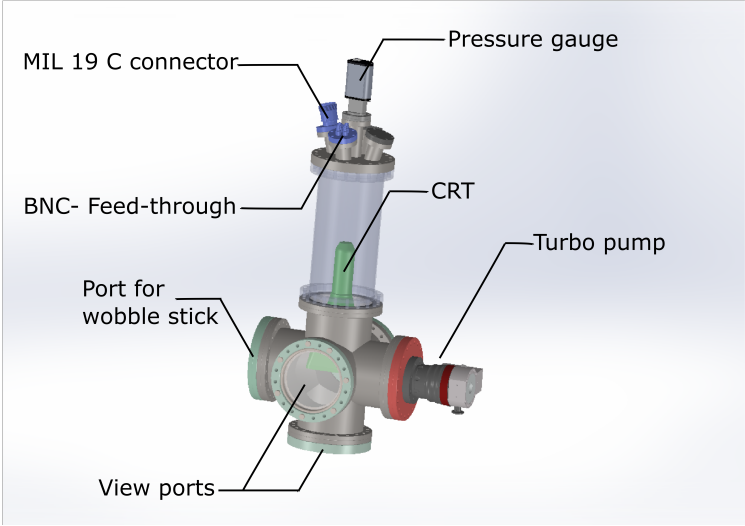
Heater



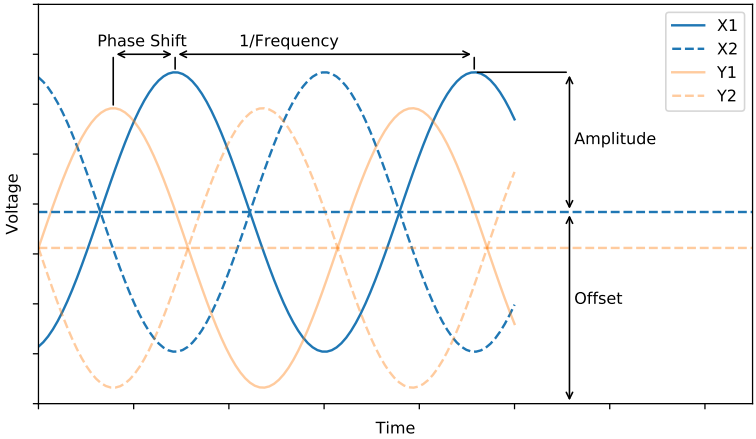
Wire cutting



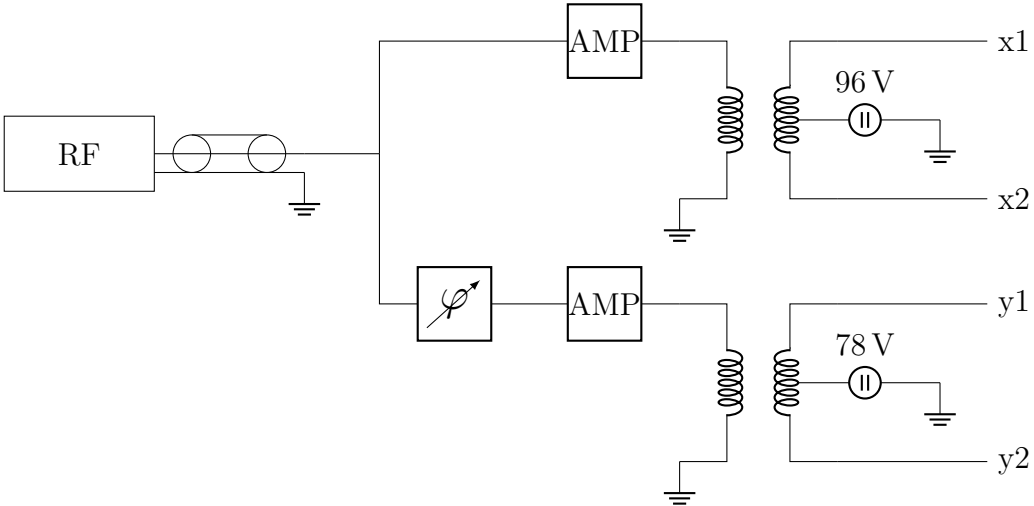
3D rendering



Deflection Electronics

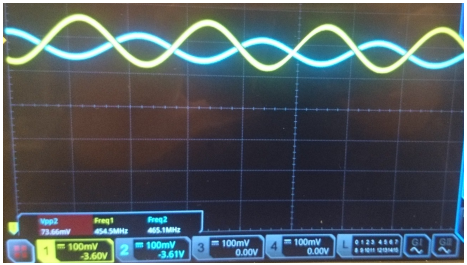


Deflection circuit diagram



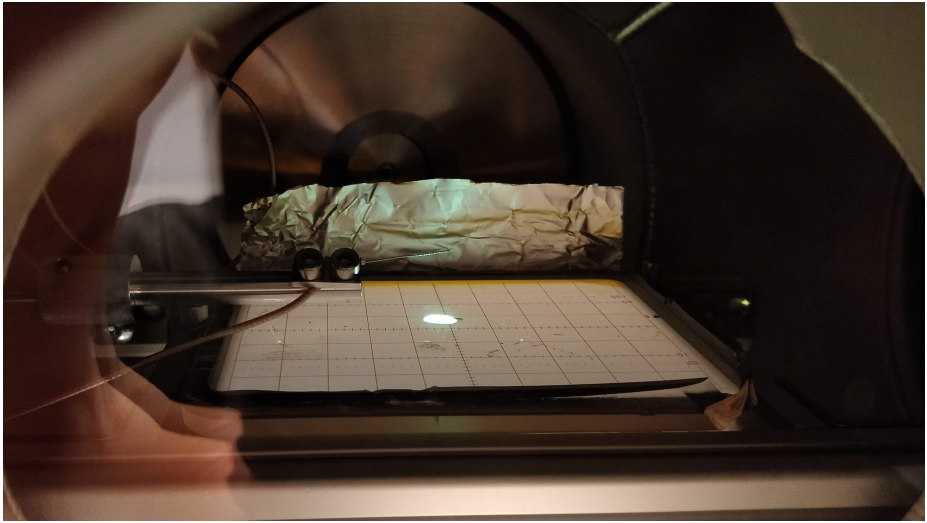
Measurements of center tapped transformer

(a) Unbiased at 465 MHz

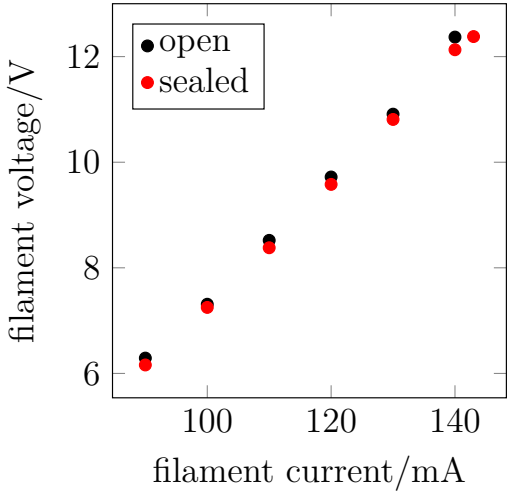


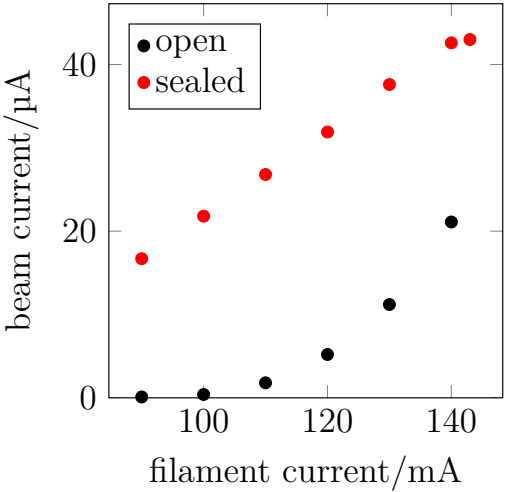
(b) Biased at 465 MHz

First measurements of e-beam

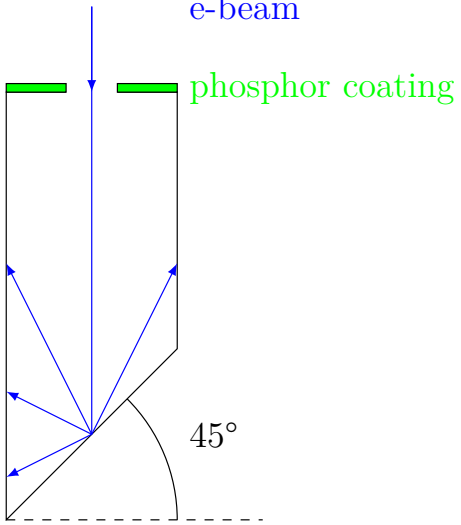


Measured beam current (aluminum)

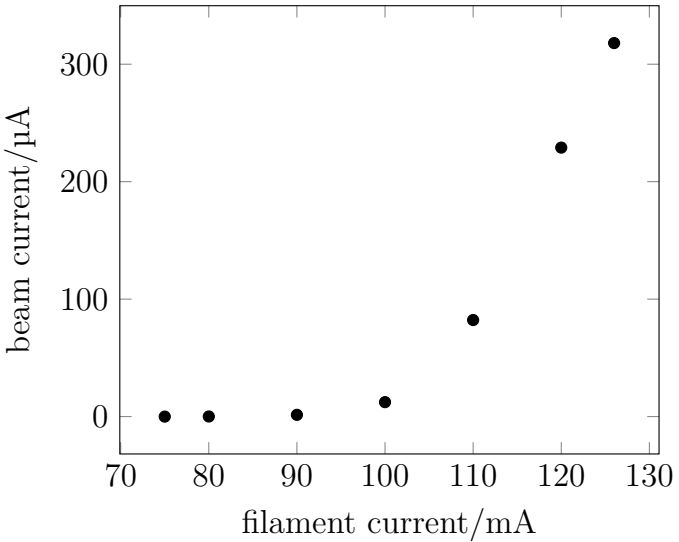




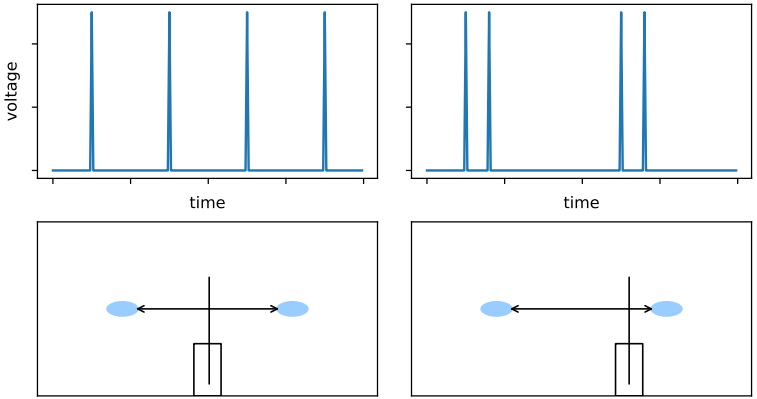
Schematics Faraday cup



Measured beam current (cup)



Measurement of deflection frequency



Thank you for your attention!