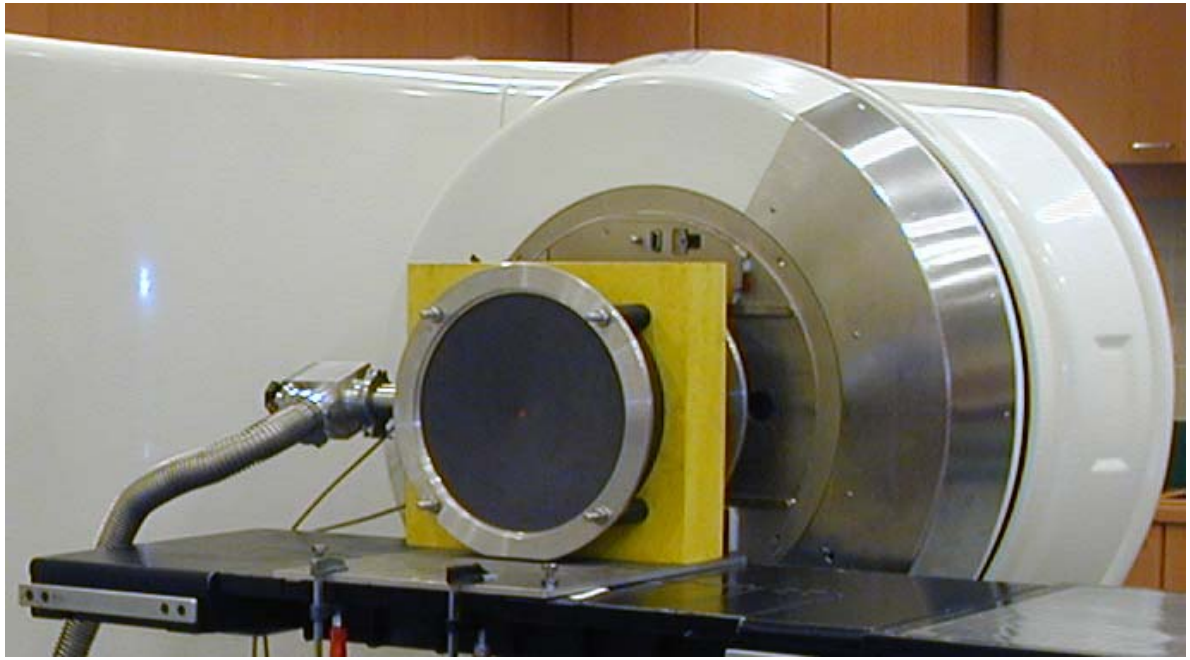

ENERGY RANGE AND APPLICATION ENHANCEMENT OF THE BEV GRAPHITE CALORIMETER: FIRST ASSIGNMENTS AND PRELIMINARY RESULTS

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BEV - Bundesamt für Eich- und Vermessungswesen

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BEV CALORIMETER ENHANCEMENT

- Aim of the work
  - Usage of the calorimeter at high energy radiation fields
  - Field characterisation and calibration of medical accelerators
- Refurbishment of the BEV calorimeter
  - Revision and replacement of hardware components
  - Development of a new evaluation program with automatic non-linear drift extrapolations, created in LabView®
  - Verification of the calorimeter response for the complete temperature working range

    → identification of thermistor aging

BEV CALORIMETER ENHANCEMENT

- Measurements and simulation studies
  - Measurements in the beam of the new reloaded BEV ^{60}Co teletherapy unit
  - Measurements at a Varian Clinac® accelerator using the graphite-calorimeter and various secondary standards
  - Calculation of application specific correction factors
  - Preliminary results for monoenergetic ^{60}Co gamma rays:
    - Correction for the effect of the vacuum gaps around the core
    - Correction for the deviation of the graphite phantom dimensions from the scaling requirements
- Prospects
  - MC-simulations
  - Additional measurements at medical accelerator fields