

ACCELERATOR SEMINAR

Klaus Kümpel

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Thursday, 17th May at 4 p.m.

Side room lecture hall, south building

Planckstraße 1, 64291 Darmstadt

“Development and first measurements of a 4-rod-RFQ with dipole compensation”

The MYRRHA (Multi-purpose hYbrid Research Reactor for High-tech Applications) Project is a planned accelerator driven system (ADS) which aims to demonstrate the feasibility of large scale transmutation. The first RF structure of the 600 MeV MYRRHA Linac will be a 176.1 MHz 4-Rod RFQ that will accelerate up to 4 mA protons in cw operation from 30 keV up to 1.5 MeV. The voltage along the approximately 4 m long electrodes has been chosen to 44 kV which limits the RF losses to about 25 kW/m. During the design of the structure a new method of dipole compensation has been applied. Due to the design principle of 4-rod-RFQs the dipole component is responsible for shifting the ideal beam axis from the geometrical center of the quadrupole downwards. Design studies with CST MICROWAVE STUDIO have shown that the dipole component can be almost completely compensated by widening the stems alternately so that the current paths of the lower electrodes are increased. This talk describes the status of the RFQ and shows the results of the measurements done at IAP Frankfurt.



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