

The Bern medical cyclotron as an irradiation facility for HEP

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The Bern medical cyclotron is a robust proton accelerator facility used for isotope production, research and HEP radiation hardness studies. A beam-transfer line is used to extract the beam from the cyclotron into a second bunker, where the device under test is located. This unique setup provides tuneable beam parameters with a maximal energy of 18 MeV in vacuum (16 MeV in air) and an adjustable beam-spot size from a few mm² to 3x3 cm². The facility delivers irradiation dose rates from as low as 0.1 Mrad/hr, to 100 Mrad/hr. A set of detectors are used for the characterisation and online monitoring of the beam, and the calculation of the dose delivered. Specific equipment was designed and constructed to irradiate either in air or in vacuum. This talk will introduce the Bern medical cyclotron as a facility for HEP irradiations and provides an overview of its capabilities. Irradiation campaigns will be reviewed together with ongoing developments to further nurture its capabilities.

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Primary authors: ANDERS, John Kenneth (Universitaet Bern (CH)); MATEU, Isidre (Universitaet Bern (CH))

Presenter: MATEU, Isidre (Universitaet Bern (CH))

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