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The Birmingham Irradiation Facility

Tuesday, 7 June 2016 09:00 (20 minutes)

The Particle Physics and Nuclear Physics Groups at the University of Birmingham have been operating the MC40 cyclotron with UK colleagues from Sheffield and Liverpool since 2013 as an irradiation facility for nuclear, medical and particle physics collaborations, such as RD50, ATLAS and LHCb. This facility offers a proton beam with energy up to 40MeV and currents as high as 2uA, allowing to reach a fluence in the order of 10^15 1MeV neq/cm2 in minutes. Irradiations are typically performed with 27MeV protons and currents in the range of 100-500nA. Irradiations of silicon sensors are carried out in a temperature controlled cold box that can be scanned through the beam. The sensors are cooled to -25C during irradiation. Beam fluence is determined online using a Faraday Cup and offline by measuring the activity of nickel foils. Results from recent sensors irradiated at Birmingham show to be in good agreement with results from other facilities. Currently the facility is extensively used for the ATLAS ITK strips ASICs irradiation program, and it is serving a number of AIDA users. The talk will give an overview of the facility, its commissioning and recent results.

Primary author: GONELLA, Laura (University of Birmingham)

Presenter: GONELLA, Laura (University of Birmingham)

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