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Experimental determination of proton hardness factors at several irradiation facilities

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The radiation hardness of detectors is of key importance for experiments at future facilities. This requirement drives a global R&D campaign on radiation hard sensors and the development of new irradiation facilities worldwide. The effect of radiation damage is conventionally communicated in terms of the equivalent 1 MeV neutron fluence, converted using a "hardness factor" which depends on the particle species and energy used for irradiation. A campaign of measurements for the determination of the hardness factors at several irradiation facilities (University of Birmingham, CERN, Katlsruhe Institute of Technology and Bonn University), using a common methodology has been undertaken and the results will be presented. Future steps towards the standardisation of the hardness factor determination will be discussed, along with the main sources of uncertainty. The advantages and disadvantages of different approaches will be outlined.

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