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The Upgrade of the iThemba LABS Neutron Beam Facility

iThemba LABS fast neutron beam facility (D-line vault) is one of the experimental vaults in the subatomic physics department. The vault has remained virtually unchanged since it was built and first became operational in the late 1980s [1]. The facility was nominated by the National Metrology Institute of South Africa (NMISA) and Bureau International des Poids et Mesures (BIPM) to be a "designated metrology institute for medium and high-energy neutron measurements" in South Africa. As a result, it is currently undergoing a major upgrade and development with the aim of achieving ISO-accreditation as a fast neutron beam reference facility. For this contribution, discussions based on challenges of the previous set-up as well as how these have been improved in the new set-up will be presented.

[1] J. C. Cornell, G. C. W. Lloyd and D. T. Fourie. "A neutron beam facility at NAC", in Proc. 12th International Conference on Cyclotrons and Their Applications (CYCLOTRONS 89), Berlin, Germany, May 1989, World Scientific Publishing Co., Singapore, 1991, pp. 594-597. http://accelconf.web.cern.ch/AccelConf/c89/papers/j-08.pdf

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