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A new reference detector for fast neutron metrology

A new reference detector for fast neutron metrology is being developed. A modern detector system based on pulse shape discrimination (PSD) plastic scintillation, compact silicon photomultipliers (SiPMs) and digital pulse processing. A main goal is to design, construct and characterize a prototype of a new fast scintillator detector suitable for fast neutron spectroscopy over the range of 0.5 MeV to 200 MeV. The detector will form part of the redevelopment of the fast neutron facility (D-Vault) at iThemba LABS and will be used in the intercomparison studies for ISO-17025 accreditation. Measurements will be made within the n-lab in UCT Physics, the fast neutron facility at iThemba LABS and AMANDE facility at IRSN in Cadarache, France.

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