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VALIDATION OF GEANT4 BERTINI CASCADE NUCLIDE PRODUCTION USING PARALLEL ROOT FACILITY

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We present an investigation to validate Geant4 [1] Bertini cascade nuclide production by proton- and neutron-induced reactions on various target elements [2].
The production of residual nuclides is calculated in the framework of an intra-nuclear cascade, pre-equilibrium, fission, and evaporation model [3]. A 132 CPU Opteron Linux cluster running the NPACI Rocks Cluster Distribution [4, 5] based on Red Hat Enterprise Linux has been used to compute cross-section results for the Bertini cascade. We have used the new features of the Parallel ROOT Facility (PROOF), distributed with ROOT version 5, to analyse the cross-section data. Automatic class generation for PROOF event data-analysis has been used on the Rocks cluster [6, 7]. Performance results for the cluster as measured with the ProofBench package are also presented.

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