Radiation studies for Mu2e magnets

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Performance of Mu2e essentially depends on how values of radiation quantities in the magnets satisfy the requirements developed so that the experimental setup withstand in the radiation environment during its lifetime. Radiation quantities such as neutron flux, DPA, power density, absorbed dose in organics, dynamic heat load in cryogenics will be discussed.

Shielding of the magnets in Mu2e Production Solenoid, Transport Solenoid and Detector Solenoid will be described along with how they comply with constraints such as quench stability, low dynamic heat loads, lifetime of the components. An account of Production Solenoid absorber (Heat and Radiation Shield) design based on thorough MARS15 simulations will be sketched from first multilayer options to the present all-bronze one.