

Abstract:

Title: FLUKA radiation damage calculations for colliders like the HL-LHC

The radiation environment implied by the operational conditions of future high-energy and high-intensity colliders poses a challenge to ensure the correct functioning and longevity of superconducting magnets and other accelerator equipment. Monte Carlo particle transport codes, with their integrated ability to describe material deterioration for example by means of displacements per atom (DPA), represent a powerful tool for the design and operation of such machines. We present various examples of FLUKA radiation damage calculations for hadron collider environments considering different radiation sources such as particle collisions in interaction points. Particular focus is given to the High Luminosity (HL) upgrade of the LHC.