

Absorbers for the High Luminosity Insertions of the LHC*, E.H. HOYER, W.C. TURNER, LBNL; N.V. MOKHOV, FNAL - Due to the high flux of interaction products leaving the high luminosity insertions of the LHC it will be necessary to install two types of secondary particle absorbers: the "front quadrupole absorber" (TAS) and the "neutral absorber" (TAN). The TAS is located in front of the final focus triplet and must absorb 145 W of collision products. The TAN is located in front of the second beam separation dipole, and is where the beams are split from two beams in one vacuum tube to two beams in two tubes. It must absorb 330 W of neutral collision products (neutrons and gammas). Both absorbers have been designed to reduce peak transmitted power density below 0.4 mW/gm, leaving a safety margin of three for quenching superconducting magnets. Radiation deposition and activation calculations have been performed with the MARS13(97) code. Conceptual solutions have been worked out for alignment, in situ vacuum bake out of the beam tube, convection cooling with tunnel air, changeout of the front quadrupole absorber aperture and assembly/disassembly taking into account tunnel access, activation and location of massive shielding for the ATLAS and CMS detectors. Ionization chamber instrumentation for the TAN is being analyzed for fast measurement of luminosity and possible feedback control of beam-beam separation at the IP.

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