

Calculations of radiation levels in the service areas  
at Point 1 of the LHC.

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Abstract

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Point 1 of the LHC houses the ATLAS detector. Calculations were performed with FLUKA to assess prompt radiation levels in various areas of interest, such as underground service caverns. Radiation can reach these areas by penetration through concrete walls of the experimental cavern and by streaming through the access galleries and cable ducts. The FLUKA geometry reflected the actual design of the ATLAS detector and the civil engineering infrastructure. Calculations were performed in two steps. In the first step, secondaries from the p-p collisions were propagated inside the detector and the experimental cavern. The particles crossing a surface of interest were written onto a "collision tape" which served as a source file in the second step

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Residual dose rate predictions for maintenance and upgrade  
of the ATLAS detector

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Abstract

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The ATLAS detector will get activated due to the LHC operation. Maintenance and upgrade of the detector will require handling radioactive material and working in areas with significant levels of residual dose rates. To plan for the individual maintenance and upgrade operations, predictions of activation and residual dose rates are being performed with the two-step method of FLUKA. The two-step method is necessary to accommodate for the various detector configurations during such operations.