

# Measurements at CERF and NA60

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- Motivation

- Benchmark of MonteCarlo code FLUKA for predictions of induced activity and remnant dose rates
- Use of typical materials for collimation and the LHC beamline components (Al, Cu, Fe, Stainless Steel, Boron Nitride (BN), Carbon Composite (CC), Water, Be, Pb)
- Induced activity and remnant dose rates are important design criteria with respect to LHC maintenance (e.g. access and handling) and environmental aspects (e.g. waste)

- Irradiation Experiments

- CERF (H6 beamline): exposure of small cylindrical samples behind a 50cm long Cu target, 120 GeV secondary SPS mixed hadron beam (p 34.8%,  $\pi$  60.7% and K 4.5%),  $\sigma \sim 10$ mm,  $\sim 10^8$  particles/spill, 16.8s spill cycle, 4s burst, two irradiations (June & July 2002)
- NA60: use of targets (Be, Pb) of the NA60 experiment, 400 GeV SPS proton beam,  $\sigma \sim 0.4$ mm,  $\sim 10^7$ - $10^9$  particles/spill, 16.8s spill cycle, 4s burst, one irradiation (June 2002),

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- Measurements

- Detailed analyses of produced isotopes and activities with a Germanium detector for different times after the irradiation
- Dose rates at various distances and cooling times with a NaI detector

- FLUKA Simulations

- Calculation of isotope production in various samples (including the exact irradiation conditions) for the time of the spectrometry analyses
- Preliminary results for BN and CC show promising agreement of measured and calculated induced activities
- The full simulation and comparison of the dose rate is a work in progress, which will show the first results in the following month

