Contribution ID: **33** Type: **Oral**

# Beam Dump Facility (BDF) at CERN radiological and environmental assessment

*Thursday, 7 June 2018 09:00 (20 minutes)*

The Beam Dump Facility (BDF), currently in its design phase, is a proposed fixed target facility at CERN, dedicated to the Search for Hidden Particles (SHiP). In order to isolate possibly existing hidden particles a high-density and high-Z target is used to fully absorb the hadronic and electromagnetic particle cascade caused by the impact of a high-intensity 400 GeV/c proton beam. Due to such experimental conditions, high levels of material activation is expected. The evaluation of radiation protection hazards is a challenging aspect for the design of this facility. In particular, high prompt and residual dose rates call for considerable shielding and remote-handling interventions in the target area. Moreover, the risk of an environmental impact stemming from air, water and soil activation heavily influences the design. This paper discusses the results of a radiological study, using FLUKA MC simulations and the ActiWiz code, to assess the above-mentioned radiation protection aspects.

**Primary authors:** STRABEL, Claudia (CERN); Dr VINCKE, Heinz (CERN); Dr CASOLINO, Mirkoantonio (CERN); ROESLER, Stefan (CERN)

**Co-authors:** LOPEZ SOLA, Edmundo (CERN); GRENARD, Jean-Louis (CERN); CANHOTO ESPADAL, Joao Pedro (CERN); BUSOM, Josep (CERN); KERSHAW, Keith (CERN); Dr CALVIANI, Marco (CERN); LAMONT, Mike (CERN); AVIGNI, Pietro (CERN); JACOBSSON, Richard (CERN)

**Presenter:** Dr VINCKE, Heinz (CERN)

**Session Classification:** Session 5-Target Facility Challenges

**Track Classification:** 5-Target Facility Challenges