



Contribution ID: 51

Type: Oral presentation (by invitation only)

## Robots for Safety in FCC

*Thursday 2 June 2022 15:10 (20 minutes)*

The FCC underground infrastructure presents important challenges in terms of human intervention and evacuation in case of an emergency. Both, time and distances required to get to or evacuate areas far from access shafts are large. Employing robots can mitigate the risk linked to this infrastructure.

Thus, usage of robots are an inherent part of the global FCC safety concept. Their main justification is twofold; on one hand, usage of robots for monitoring and maintenance purposes limit human presence underground and, thus, improve the life safety goal by reducing risk exposure. On the other hand, robots can be deployed with fast response time and, therefore, provide unique and valuable data to inform and support decision makers, start a first intervention and later support a human intervention in case of incident or emergency. This last point is of paramount importance as the concept of human intervention, including techniques, firefighting, rescue materials, and logistics, must be shaped differently w.r.t current LHC approach due to dramatic increase of distance from any fire station on surface to the underground areas and the consequent response times.

This talk will highlight the necessity of this technology as well as the added value of embedding robots (and their particular requirements) into the FCC safety design in the very early stage. The talk will focus on current CERN and external examples of robot support for maintenance and emergency situations. It will showcase up-to-date approaches and CERN advancements to prepare this technology to support such a safety objective while highlighting the challenges and key features of their integration into the FCC.

**Primary authors:** MASI, Alessandro (CERN); HENRIQUES, Andre (CERN); RIOS, Oriol (CERN); NAS, Marc (CERN); DI CASTRO, Mario (CERN); WIDORSKI, Markus (CERN); LOSITO, Roberto (CERN); OTTO, Thomas (CERN)

**Presenter:** RIOS, Oriol (CERN)

**Session Classification:** Technical Infrastructures

**Track Classification:** Technical Infrastructures