Contribution ID : **38** Type : **Oral talk**

# Cast lead-polystyrene spaghetti type calorimeter for LHCb ECAL Upgrade II

*Thursday, 1 December 2022 18:30 (15)*

The LHCb Upgrade phase II aims to collect $300\,fb^{-1}$ in a few years operating at a luminosity of $1.5{*}10^{34}cm^{-2}s^{-1}$. This requires a significant change of the systems including the electromagnetic calorimeter (ECAL), which must be capable to sustain integrated radiation doses up to 1 MGy in the innermost region. The second major requirement is time resolution of the order of a few tens of picoseconds. The new ECAL will be subdivided into zones: spaghetti calorimeter (SPACAL) in the central part with the highest expected radiation doses and zones with Shashlik-type modules of different granularity. The SPACAL region is subdivided into an innermost region with tungsten 3D-printed absorber and radiation hard crystals (e.g. GAGG, GFAG) with $15 * 15mm^2$ cell size, and an intermediate region with a cast lead-based absorber and polystyrene scintillating fibres. This talk presents the results of the first cast lead-polystyrene spacal prototype studies performed with an electron beam at the CERN SPS test-beam facility.

**Primary author(s) :** Mr. DIACHKOV, Igor (NUST MISiS)

**Presenter(s) :** Mr. DIACHKOV, Igor (NUST MISiS)

**Session Classification :** Facilities and Advanced Detector Technologies

**Track Classification :** Facilities and advanced detector technologies