Contribution ID: **334** Type: **Parallel session talk**

Development of a System for Beam Abort and Luminosity Determination at the HL-LHC based on polycrystalline CVD diamond

Thursday, 27 May 2021 07:48 (18 minutes)

The High Luminosity upgrade of Large Hadron Collider (HL-LHC) will increase the LHC Luminosity by an order of magnitude increasing with it the density of particles on the detector by an order of magnitude. For protecting the inner detectors of experiments and for monitoring the delivered luminosity, a radiation hard beam monitor is being developed. We are developing a set of detectors based on poly-crystalline Chemical Vapor Deposition (pCVD) diamonds and a dedicated rad-hard ASIC. Due to the large range of particle flux through the detector, flexibility is very important. To satisfy the constraints imposed by the HL-LHC, our solution is based on segmenting each single diamond sensor into multiple devices of varying size and reading them out with a new multichannel readout chip. In this talk we describe the proposed system design including detectors, electronics, mechanics and services and present preliminary results from the first detectors fabricated using our prototype ASIC.

TIPP2020 abstract resubmission?

Yes, this would have been presented at TIPP2020.

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