Contribution ID: **122** Type: **Oral**

The development of a 3D detector on a hydrogenated amorphous silicon substrate

Tuesday 26 February 2019 09:40 (20 minutes)

The vertex detectors of the future hadronic colliders will operate under proton fluencies above 10E16 p/cmsq. Crystalline Silicon detector technology, up to now, has kept the pace of the increasing fluencies in the LHC era and it is still the prevalent vertex detector technology for the present and for the immediate future. Looking ahead in time an alternative solution for such a detector has to be found because for the future there is no guarantee that Crystalline Silicon will hold this challenge. Hydrogenated amorphous silicon (a-Si:H) has outstanding radiation hardness performances although the development of planar detectors did not have very successful results. A possible way to overcome the difficulties of building an a-Si:H detector can be solved by using the 3D-technology. For these reasons the development of hydrogenated amorphous silicon vertex detectors based on 3D-technology have been proposed and the technological solutions in order to build these detectors are described in this talk.

Primary authors: MENICHELLI, Mauro (INFN Perugia); BOSCARDIN, Maurizio (Universita degli Studi di Trento è INFN (IT)); DUNAND, Sylvan ((i) Ecole Polytechnique Federale de Lausanne (EPFL), Institute of Microengineering (IMT), Neuchatel, (SWITZERLAND)); FANO', Livio (Universita e INFN, Perugia (IT)); MOSCATELLI, Francesco (Universita e INFN, Perugia (IT)); MOVILEANU-IONICA, Maria (INFN-Sez. di Perugia); PETASECCA, Marco (University of Wollongong); PICCINI, Mauro (INFN - Sezione di Perugia (IT)); ROSSI, Alessandro (INFN Perugia); SCORZONI, Andrea (Dip. Di Ingegneria dell'Università degli studi di Perugia, Perugia (ITALY)); VERZELLESI, Giovanni (University of Modena and Reggio Emilia, Italy); WYRSCH, Nicolas (EPFL)

Presenter: MENICHELLI, Mauro (INFN Perugia)

Session Classification: Session 4: Technologies and Applications (1)