

# 10th Anniversary "Trento" Workshop on Advanced Silicon Radiation Detectors

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## First concepts for 3D radiation detector manufacturing at CiS

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In the past, the CiS Forschungsinstitut für Mikrosensorik und Photovoltaik has made a mark as a manufacturer of reliable radiation hard planar silicon sensors for various important high energy particle detectors.

Radiation detectors based on 3D structures in silicon are a promising way to increase their radiation hardness. This is especially needed in the high luminosity upgrades of the large hadron collider (LHC) at CERN. Due to the small distances between the electrodes in 3D sensors the depletion voltage can be clearly reduced and the charge collection efficiency is increased.

A first concept for realisation of a 3D radiation detector at CiS will be presented and discussed. The required holes can be implemented using a deep reactive ion etching capability of a newly installed ICP etching tool. A challenging task is the conformal doping of the trenches. Several approaches are discussed.

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