



iWoRiD 2022

23rd International Workshop on Radiation Imaging Detectors

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INVITED: Semiconductor Drift Detectors: history, present and future

Thursday, 30 June 2022 08:45 (30 minutes)

At 40 years from its invention, this presentation would like to remember the history of the Semiconductor Drift Detector (SDD) since its conception by E. Gatti and P. Rehak, the technological efforts and studies done in Brookhaven, Milan and Munich to develop the first prototypes, the many different device topologies conceived, the theoretical studies and the many applications in which SDDs have given a fundamental contribution.

The presentation will highlight also the research activities regarding the development of low noise front-end electronics aimed to exploit the high potentiality of SDDs, from the discrete and integrated JFETs to the more advanced CMOS ASICs implementations. The engineers and scientists who contributed from all over the world to this fascinating scientific and technological journey will be mentioned.

Although nowadays, the maturity of SDDs technology is very high and successful commercial spectrometers are made available by many companies, research and development activities are still open and are continuously stimulated by the challenges lead by many scientific applications as in Synchrotron radiation facilities for fundamental and applied Science or in Astrophysics with complex and very large format imaging X and Gamma ray spectrometers for space missions. Starting from the currently running research on SDDs, a perspective view of the still open possibilities and challenges for future developments and applications will be presented.

Presenter: Prof. BERTUCCIO, Giuseppe (Politecnico di Milano)

Session Classification: Applications