



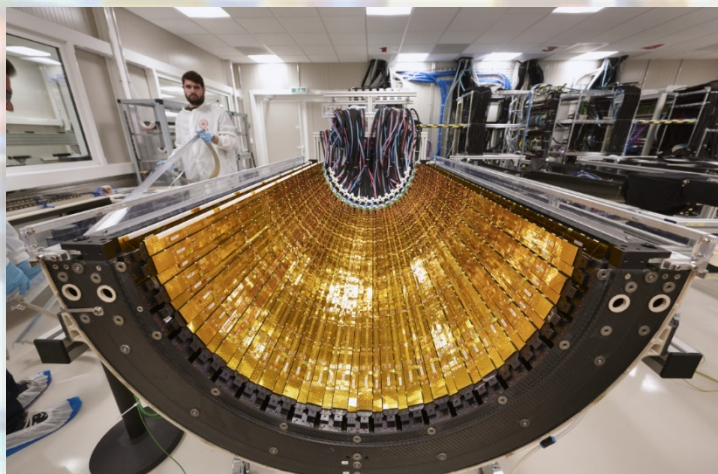
Ciclo de Seminarios de la Red LHC

Thinner, faster and smarter - Semiconductor detectors for high radiation environments in future collider experiments

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While silicon pixels is the commonly chosen **technology** for measuring particle trajectories in the **high track density environment** of modern HEP detectors, the planned detector upgrades and next generation of experiments pose stringent requirements on the inner detector systems.

A **large variety of silicon pixel detector technologies** have been developed to address the specific needs of these diverse use-cases. There are, though, common detector needs: Thin sensors, small pixels, precise timing, complex in-pixel processing capabilities together with low power consumption while being operated in **high radiation environments**.

In this talk, I will briefly describe the **historical evolution of silicon detectors for high energy physics** applications and its **basic principles**, giving an **overview of the most promising evolution for future HEP projects** given the aforementioned mutually exclusive characteristics.

Carlos Mariñas obtained his degree and MSc at **USC**. He got his PhD at the **UV** on the development of DEPFET sensors for the **Linear Collider** experiments and the cooling system of the **Belle II** pixel detector. While at the **U. of Bonn**, he was in charge of the integration and commissioning of the **Belle II vertex detector at KEK**, and got in touch for the first time with the depleted monolithic active CMOS pixel sensors. During this stay in Japan, he was **deputy run manager** during the start up phase of the **SuperKEKB** flavor factory. **Dr. Mariñas is now back at IFIC as GenT Distinguished Researcher**. He is **deputy chair of the Belle II technical board** and **coordinator of the vertex detector upgrade** with CMOS sensors.

