Contribution ID: **335** Contribution code: **WEPCO19** Type: **Poster Presentation**

Functionalization of SiC diodes for soft X-ray optics

Wednesday 10 September 2025 16:00 (2 hours)

In scanning transmission X-ray microscopy (STXM) beamlines, precise control of X-ray beam position and intensity (I_0) is crucial to minimize imaging artefacts and improve spectral quality. However, limited working distances in STXM setups restrict the integration of conventional diagnostics. To address this, we have developed a center-stop-based Silicon Carbide (SiC) device that integrates beam position sensitivity directly into the optical path, by functionalizing the order sorting aperture (OSA). The device was fabricated from a 20 µm thick single-crystalline SiC membrane using plasma focused ion beam (PFIB) lithography, enabling accurate microstructuring while preserving front-side electrode integrity. Live recording of beam position and I_0 during measurements is enabled through the 4-sector diode geometry patterned around the center stop. Validation experiments at the PolLux beamline (Swiss Light Source) demonstrate the device's suitability for real-time correction of beam-induced artefacts in next-generation STXM. Additional fabrication details and characterization will be presented at the conference

Footnotes

Funding Agency

I have read and accept the Conference Policies

Yes

Authors: CAMARDA, Massimo (Institute for Microelectronics and Microsystems; SenSiC GmbH; STLab srl); Dr FINIZIO, Simone (Paul Scherrer Institute)

Co-authors: TROVATO, Gabriele (University of Catania; Institute for Microelectronics and Microsystems; Istituto Nazionale di Fisica Nucleare, Sezione di Catania; STLab srl); Dr REUTELER, Joakim (Paul Scherrer Institute); Dr RAABE, Jörg (Paul Scherrer Institute); Mr LA ROSA, Niccolò (University of Catania; STLab srl); Mr MOSCATO, Samuele (University of Catania; STLab srl)

Presenters: TROVATO, Gabriele (University of Catania; Institute for Microelectronics and Microsystems; Istituto Nazionale di Fisica Nucleare, Sezione di Catania; STLab srl); CAMARDA, Massimo (Institute for Microelectronics and Microsystems; SenSiC GmbH; STLab srl); Mr LA ROSA, Niccolò (University of Catania; STLab srl); Dr FINIZIO, Simone (Paul Scherrer Institute)

Session Classification: WEP

Track Classification: MC03: Beam Position Monitors