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Functional and Single Event Effects (SEE) Triplication Verification of the ATLAS ITk Strip Tracker HCCStar and AMACStar Front-end ASICs

Tuesday 7 October 2025 17:10 (20 minutes)

With ASICs becoming more complex and traditional verification frameworks, such as UVM, requiring specialized knowledge, alternatives such at the cocotb python-based frameworks become attractive. In an academic environment, students who are already familiar with python can quickly be leveraged to write testbenches for complex ASICs. This talk will give a brief introduction to cocotb using our experience with the HCCStar and AMACStar designs as well as a detailed discussion of the extensive triplication implemented as SEE mitigation and the techniques used to verify the triplication.

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