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Single Event Upset (SEU) Testing with the Sandia Ion-Photon Emission Microscope (IPEM)

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Abstract

The current work focused on using the tabletop IPEM to observe SEU errors in a Sandia developed 16K Static Random Access Memory (SRAM) microchip. The chip was actively exercised by continuously looping write and read cycles using different patterns while under irradiation. Errors in the patterns were registered by the JD Instruments digital tester and signaled a data acquisition system to record the x and y coordinates from the position sensitive detector (PSD). The selection of suitable materials for the photo-luminescent layer and the mating of the two systems (digital tester and DAQ) were among the primary objectives that have already been achieved.

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