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Trigger System Upgrades for the SNO+ Experiment ERIC MARZEC, University of Pennsylvania, SNO+ COLLABORATION — The SNO+ experiment will explore many topics in neutrino physics including neutrino-less double beta decay, low-energy solar neutrinos, antineutrinos from reactors and natural sources, nucleon decay, and potentially supernova neutrinos. The SNO+ trigger and readout system consists of electronics both inherited from the SNO detector and newly created specifically to address the challenges presented by the addition of scintillation light. Addition of new utilities to the SNO+ trigger system will allow for a flexible calibration interface, more sophisticated use of the existing trigger system, and new, more targeted, background cuts that will improve physics sensitivity. These utilities will largely be orchestrated by a MicroZed System on Chip (SoC), micro-controller. Their range of application includes automatic fault detection, upgrades of SNO utilities, noise reduction, and interfacing between components of the trigger system.

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