

Particulate Matter Detection with Silicon Photomultipliers

Tuesday 16 August 2022 15:27 (12 minutes)

The Single Photon Air Analyzer project (SPAA) aims to develop proof-of-concept for a new optical particulate matter detector. This detector is novel in that it uses the scattering angle of photons to determine the size of particulate matter in air. An array of silicon photomultipliers (SiPMs), solid-state sensors capable of single-photon resolution, will count small numbers of photons scattered by the particulate. SiPMs are more sensitive than traditional photodiodes used by existing particulate matter detectors. The SPAA concept, if successful, would provide a portable, low-cost, and highly sensitive particulate matter detector. In this presentation I will review the motivation for this detector, its fundamental operating principles, and present preliminary data.

Author: HENRIKSSON-WARD, Maia (TRIUMF)

Co-authors: SOROKIN, Alex (TRIUMF); CAPRA, Andrea (TRIUMF (CA)); DE ST. CROIX, Austin (TRIUMF/UBC); MIN, Byeongguk (Inha University (KR)); MCCARTHY, Duncan (TRIUMF); RETIERE, Fabrice; MARTIN, Juliette (The University of Edinburgh, TRIUMF); RAYMOND, Kurtis (Simon Fraser University); MAHTAB, Mahsa (TRIUMF); PATEL, Mayur; MASSACRET, Nicolas (Triumf); ALBANO, Noah (TRIUMF); MARGETAK, Peter (TRIUMF); UNDERWOOD, Ryan (TRIUMF); KOULOUSOUSAS, Seraphim; CHARLESWORTH, Zachariah

Presenter: HENRIKSSON-WARD, Maia (TRIUMF)

Session Classification: Session VIII