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Prospects of heavy flavour physics with sPHENIX MAPS based vertex detector YASSER CORRALES MORALES, LANL, SPHENIX COLLABORATION — The sPHENIX detector will measure a suite of unique heavy flavour observables in heavy-ion collisions with unprecedented statistics and kinematic reach at the Relativistic Heavy Ion Collider (RHIC). A three-layer of the latest generation of Monolithic-Active-Pixel-Sensor (MAPS) based vertex detector (MVTX), will serve as the innermost tracking system of the sPHENIX experiment. The MVTX will provide a precise determination of the impact parameter of tracks relative to the collision vertex in high multiplicity heavy-ion collisions. Its very fine 27 μm x 29 μm pixels and low integration time (< 10 μs), which limits the event pile-up, allow us to identify B-decay secondary vertices and B-jets with high efficiency and high purity in heavy-ion collisions at the high luminosity RHIC environment. These new capabilities will enable precision measurements of open heavy flavor observables, covering an unexplored kinematic regime at RHIC. In this presentation, the open heavy flavor physics program at sPHENIX and the MVTX detector current status R&D will be discussed.

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