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Probing initial stages with scale dependent observables of the QGP in sPHENIX

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Our understanding of QCD under extreme conditions has advanced tremendously following the discovery of the Quark Gluon Plasma and its detailed characterisation in heavy ion collisions at RHIC and the LHC. The sPHENIX experiment at RHIC will provide precision measurements of jet, Υ and open heavy flavor probes, complementing analogous measurements at the LHC. The physics program enabled by these measurements will advance understanding of QCD dynamics through all phases of the collision, connecting the initial stage in which one expects large temperature and parton density differences between collisions at RHIC and LHC energies, to subsequent stages in which the properties of scale sensitive probes can be further modified. We will describe the current status of the sPHENIX detector and its physics program, with an emphasis on the physics program enabled by the experiment's large coverage, high rate capability and precision vertexing.

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