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Measurement of global spin polarization in relativistic Au+Au collisions JOSEPH ADAMS, Ohio State Univ - Columbus — Heavy-Ion Collisions (HICs) at high energies create energy densities sufficient to create a new state of matter, the Quark-Gluon Plasma (QGP), which is characterized by the deconfinement of quarks and gluons; these partons which normally exist in bound states (protons and neutrons) are free for a very short period of time (O(1 fm/c)) in the QGP. Studying correlations of particles generated by the QGP created in HICs is the only feasible way to experimentally study the strong nuclear force; therefore, experiments such as the Solenoid Tracker at the Relativistic Heavy-Ion Collider (STAR) have generated much interest in the community and have yielded extremely useful measurements. Substantial fluid vorticity leading to a spin alignment of emitted hadrons with the angular momentum of the nucleus-nucleus collision system, in the paradigm of hydrodynamics, was predicted theoretically. The STAR Collaboration has recently measured non-zero global spin polarization and found the associated fluid vorticity to be the largest in any known system by many orders of magnitude. While substantial progress has been made, there is still much to understand about vorticity-driving mechanisms within the QGP formed in HICs. In this talk, I address the exciting physics in these measurements.

Joseph Adams
Ohio State Univ - Columbus

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