Abstract for an Invited Paper for the DNP10 Meeting of The American Physical Society

Extracting the properties of strongly-interacting plasmas from RHIC data¹ DENES MOLNAR, Purdue University

Spectacular measurements over a decade at the Relativistic Heavy Ion Collider (RHIC) indicate remarkable properties for hot and dense nuclear matter in the temperature range $T \sim 200 - 400$ MeV. For example, shear viscosity appears to be very low, close to universal "minimum viscosity" bounds based on quantum arguments. Moreover, the matter is surprisingly opaque even to heavy quarks. These findings led to the emergence of the strongly-interacting quark-gluon plasma (sQGP) paradigm. In this talk I will review the current status of determination of key bulk matter properties from RHIC heavy-ion data, and discuss remaining theoretical challenges.

¹Support from DOE grants DE-PS02-09ER41665 and DE-AC02-98CH10886 is gratefully acknowledged.