Abstract for an Invited Paper
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The Gauge-String Duality and Quantum Chromodynamics

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As the first of three speakers on string theory and nuclear collisions, I will focus on the broad sweep of the gauge-string duality. I will describe the duality's origin in the study of D-branes. I will discuss its status as a conjectured relation between gauge theories in four-dimensional flat space and string theory in five or ten dimensions. I will discuss its relationship to quantum chromodynamics and note the rationale for using it to study the quark-gluon plasma produced in nuclear collisions. I will introduce anti-de Sitter space, which is the main geometrical ingredient in the relevant string theory constructions. And I will describe black holes in anti-de Sitter space, which are the key to understanding thermal states like the quark-gluon plasma in terms of string theory. I will assume some familiarity with black holes and with quarks and gluons, but I will introduce string theory concepts (like D-branes) as I go.