

Kent State University

Physics Colloquium

PROFESSOR JORGE NORONHA

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**QUARK-GLUON PLASMA: THE HOTTEST
(AND THE TINIEST)
MOST PERFECT FLUID EVER MADE**

Abstract

A few microseconds after the Big Bang, the Universe was filled with an extremely hot and dense matter called the quark-gluon plasma. Particle colliders have now succeeded in recreating the extreme conditions needed to produce this exotic state of matter where quarks and gluons, the fundamental building blocks of nature that account for nearly all the mass of the visible matter in the Universe, are not confined inside the core of atoms. Experiments have shown that in a few trillionths of a trillionth of a second, quarks and gluons conspire to form a strongly interacting, nearly frictionless relativistic fluid over distance scales not much larger than a few times the size of a proton and temperatures of more than 4 trillion degrees. I will discuss the exciting connection that has appeared between string theory and nuclear collisions and how new developments in string theory have shed light on the non-equilibrium properties of the early Universe fluid produced in large colliders.

TUESDAY, NOVEMBER 10, 2015

3:15 PM

SMITH HALL 111

REFRESHMENTS: 3:00- PM – SMITH HALL 111