PHYSICS AND ASTRONOMY
SEMINAR

Dr. Archisman Ghosh

University of Kentucky

The Fluid-Gravity Correspondence and Dumb Holes

Abstract

"One of the most important results that has emerged from String Theory over the last fifteen years is the ``Gauge-Gravity Duality'': In certain cases, a string theory, which is a theory of gravity, is exactly equivalent to a non-gravitational gauge theory -- quite similar to the field theories describing the interactions of fundamental particles.
When the interactions among the particles in the gauge theory are strong, the particles behave effectively like a fluid. We can then have a correspondence between fluid dynamics and gravity and can map hydrodynamic flows to solutions in gravity.
An interesting flow to look at is a dumb hole solution. A dumb hole is an acoustic analogue of a black hole -- a region in a flow from which sound cannot escape. We look at the dual of a dumb hole and propagation of waves near it to obtain a novel result in gravity."

Thursday, November 17, 2011
2:00 p.m.
MacLaurin Building
Room D101