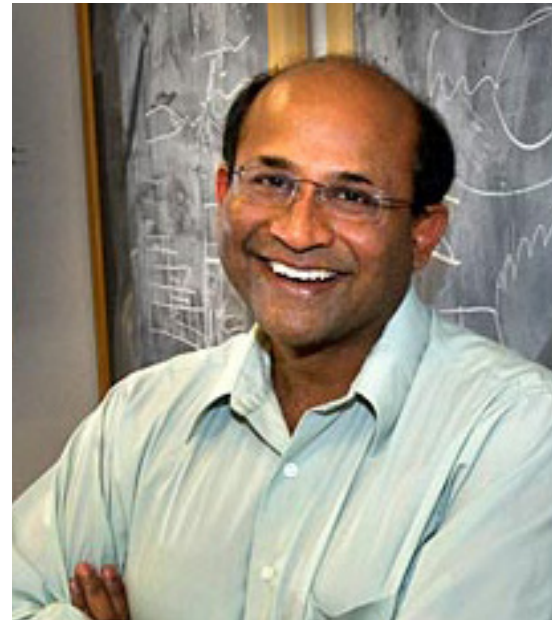


PHYSICS AND ASTRONOMY COLLOQUIUM

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Novel Phenomena from the Non-Equilibrium Dynamics of Strongly Correlated Gluons

Protons and nuclei at very high energies can be described as Color Glass Condensates whose dynamics is dominated by strongly correlated gluons. As in condensed matter systems, this dynamics has universal features. In collisions of ultra relativistic nuclei, the Color Glass Condensates shatter, producing thousands of gluons in a strongly correlated Glasma state. After initial transient dynamics dominated by explosive plasma instabilities, the Glasma becomes a turbulent attractor. The matter loses memory of initial conditions and acquires self-similar behavior characterized by universal scaling exponents--in strong analogy to post-inflationary reheating dynamics of the early universe. We outline how the Glasma subsequently evolves into a nearly perfect relativistic fluid--the Quark-Gluon Plasma.



THURSDAY, APRIL 10, 2014 | 4:00 PM | HAWKING AUDITORIUM



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