* UCLA Nuclear Physics Seminar

"Evidence for a critical endpoint in the QCD phase diagram from measuring mass and radius of compact stars"

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There is a one-to-one relationship between the mass-radius relationship for compact stars and the equation of state of cold dense neutron star matter. Measuring simultaneously the masses and radii for a number of neutron stars (mostly seen as pulsars) at sufficient accuracy (as with the recently launched NASA mission NICER) thus allows to measure the equation of state and eventually to tell whether there is a phase transition to quark matter in compact star interiors.

I shall discuss that the possible observation of high-mass twins in the mass-radius diagram might provide evidence for a strong first order phase transition which in turn would entail that there must exist a critical endpoint (CEP) of such phase transitions in the QCD phase diagram. The very existence and the possible location of the CEP is a major goal of research, in theory as well as in heavy-ion collision experiments.

Location: Knudsen 4-134

Date: Monday, August 14th, 2017

Time: 2:00pm

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