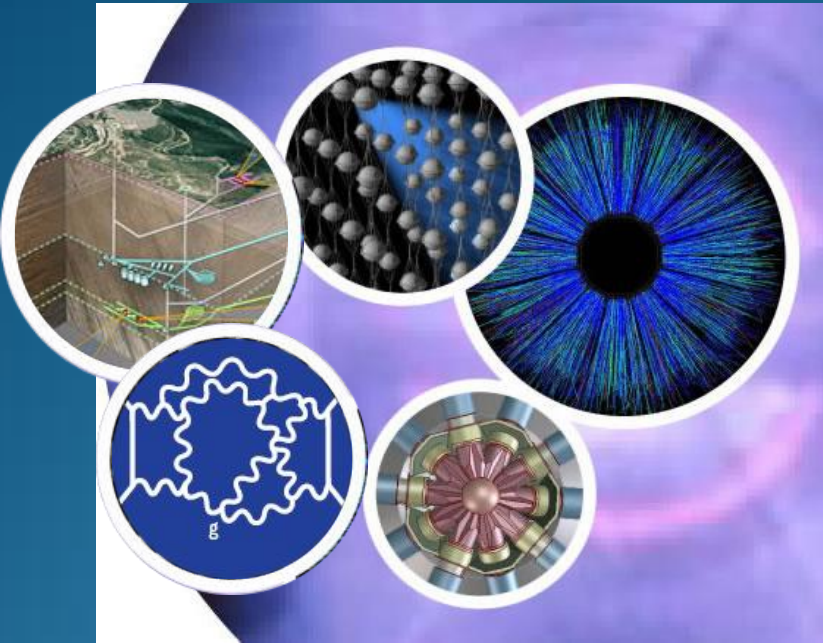


Nuclear Science Division Colloquium

Exploring the fundamental properties of matter with an electron-ion collider



Dr. Jianwei Qiu
BNL

Wednesday
November 10, 2010
11:00am
Bldg. 54-130, Pers Hall

Abstract: The proton and neutron are the basic building blocks of all elements that are responsible for more than 95% weight of visible matter in the universe, while the proton and neutron themselves are not elementary and are believed to be made of quarks and gluons. One of the most challenging questions in physics for the past several decades and the future is to understand QCD confinement and to describe the fundamental properties of hadrons, such as mass, spin, and magnetic moment, in terms of quarks, gluons, and their dynamics in QCD. In this talk, I will demonstrate that an energetic electron-ion collider with a good luminosity and beam polarization is an ideal and much needed machine to search for clues of the confinement, the remarkable property of QCD, by exploring the internal structure of a nucleon and a nucleus, as well as their fundamental parameters, such as mass and spin, in terms of quarks, gluons, and their dynamics in QCD.



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