Departments of Physics Colloquium

Proton Remains Puzzling

Dr. Haiyan Gao

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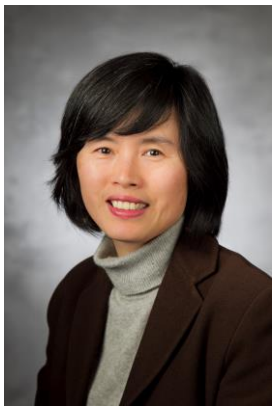

Friday, November 18, 2016
1:30 – 2:30 PM
Venue: RB 130, MMC

Abstract: Nucleons are building blocks of visible matter, and are responsible for more than 99% of the visible mass in the universe. Despite major progress made in the last two decades in understanding the proton spin puzzle discovered in the late 1980s by the European Muon Collaboration, a new proton puzzle developed in the last several years concerning the proton charge radius, which is the charge weighted size of the proton. The ultrahigh precise value of the proton charge radius determined from muonic hydrogen Lamb shift measurements is about 7 σ smaller than the values determined from electron-proton scattering experiments and the CODATA value of the hydrogen Lamb shift measurements. In this talk I will review the latest situation concerning the proton charge radius and discuss the PRad experiment that was completed recently at the Jefferson Lab in Newport News, Virginia.

Biography: Born in Shanghai, China, Haiyan Gao received her B.S. degree from Tsinghua University in 1989 and Ph.D. in Physics from Caltech in 1994. Dr. Gao is the Henry Newson Professor of Physics at Duke University, and from 2015 the Vice Chancellor for Academic Affairs at Duke Kunshan University, China. Her research interests cover the structure of the nucleon, search for Quantum Chromodynamics exotic states, fundamental symmetry studies at low energy to search for new physics beyond the Standard Model of electroweak interactions, and the developments of polarized targets. She received a number of awards including being named as one of the China's National Thousand-Talent Program professors at Tsinghua University in 2012. She was elected as a Fellow of the American Physical Society in 2007. She won the Overseas Outstanding Young Scholar Collaborative Award by the National Natural Science Foundation of China in 2005, and the Outstanding Junior Investigator Award by the US Department of Energy in 2000. She has published over 120 papers in peer-reviewed journals, and has given more than 250 invited conference talks, seminars and colloquia worldwide. She chaired and co-chaired many workshops and conferences, has served on many international advisory committees and panels, and a number of editorial boards of journals.

The event is free and open to the public.

Future seminars can be found at http://physics.fiu.edu/seminars/

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