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The 154th HENPIC seminar by Dr. Yuxiang Zhao, IMP, CAS, Dec. 9th, 2021, Thursday, 10:30am (Beijing time)

talk title: Electron Ion Collider in China (EicC)
abstract:
Lepton scattering is an established ideal tool for studying inner structure of small particles such as nucleons as well as nuclei. As a future high energy nuclear physics project, an Electron-ion collider in China (EicC) has been proposed. It will be constructed based on an upgraded heavy-ion accelerator, High Intensity heavy-ion Accelerator Facility (HIAF) which is currently under construction, together with an additional electron ring. The proposed collider will provide highly polarized electrons (with the polarization ˜80%), protons and Helium-3 (both with the polarization ˜70%), as well as unpolarized ion beams from Carbon to Uranium with viable center of mass energy from 10 to 20 GeV and the luminosity of (2 ˜ 4) × 1033 cm−2·s−1.
The main foci of the EicC will be the precision measurements of the structure of proton in the sea quark region, including 3D tomography of nucleon which reveals the QCD dynamics; the partonic structure of nuclei and the parton interaction with the nuclear environment, in particular, the short range correlation of nucleons and the cold nuclear matter effects; the exotic states, especially those with heavy flavor quark contents. In addition, issues fundamental to understanding the origin of mass could be addressed by measurements of heavy quarkonia near-threshold production at the EicC. In order to achieve the above-mentioned physics goals, a hermetical detector system will be constructed with the cutting-edge technology. In this talk, the physics program, detector conceptual design and the project status will be reported.
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[1] D. Anderle et al., Electron-ion collider in China, Front. Phys. 16 (2021) 64701

about the speaker: Yuxiang Zhao is now a staff scientist in the institute of modern physics. He received his B.S. and Ph.D. degree at University of Science and Technology of China. His Ph.D project is the transverse spin structure study of the nucleon at Thomas Jefferson Lab in the US. He has been awarded the "Outstanding Dissertation Award" by the International Organization of Chinese Physicists and Astronomers "for his significant contributions to a number of new analyses of the transversity data and to hardware and simulations for the SoLID project". Then he joined Stony Brook University as a postdoctoral research associate to work on electro-weak physics in lepton-nucleon scatterings and continue his involvement in transverse spin structure study at JLab. Afterward, he joined INFN Trieste as INFN fellow to continue his expertise in Micro-Pattern-Gaseous-Detectors (MPGD) and the spin physics in the COMPASS experiment at CERN SPS. After joining IMP, he is mainly working on the Electron Ion Collider in China (EicC) and the Electron Ion Collider at Brookhaven National Laboratory in the US.