APR18-2018-030043

Abstract for an Invited Paper
for the APR18 Meeting of
the American Physical Society

EIC Design and Challenges for JLEIC

YUHONG ZHANG, Thomas Jefferson National Accelerator Facility

A high luminosity high polarization electron-ion collider with a center-of-mass energy range of 20 to 140 GeV was recommended by the 2015 NSAC Long Range Plan as the next accelerator facility to be built in the US for reaching the QCD frontier. At Jefferson Lab, the design study of such an electron-ion collider, JLEIC, based on the existing 12 GeV CEBAF SRF linac, has been actively pursued over the last ten years. JLEIC utilizes high bunch repetition colliding beams for achieving high luminosity up to 2x1034 /cm2/s. JLEIC also adopts a figure-8 shape for the two collider rings as well as the ion booster for its advantage in preserving high beam polarization. The JLEIC interaction region design was optimized to enable full acceptance particle detection. In this talk, I will give an overview of the JLEIC baseline design and also discuss the accelerator RD challenges.

Supported by the U.S. Department of Energy, Office of Nuclear Physics, under Contract No. DE-AC05-06OR23177 and DE-AC02-06CH11357.