38th INTERNATIONAL CONFERENCE ON HIGH ENERGY PHYSICS
AUGUST 3 - 10, 2016
CHICAGO

Contribution ID: **110** Type: **Poster**

Search for QCD Instanton-Induced Processes in DIS at HERA

Saturday, 6 August 2016 18:00 (2 hours)

Signals of QCD instanton-induced processes are searched for in deep-inelastic scattering (DIS) at the electron-proton collider HERA in the kinematic region defined by the Bjorken-scaling variable $x > 0.001$, the inelasticity $0.2 < y < 0.7$ and the photon virtuality $150 < Q^2 < 15000$ GeV^2. The search is performed using H1 data corresponding to an integrated luminosity of 350 pb^{-1}. Several observables of the hadronic final state of the events are exploited to identify a potentially instanton-enriched domain. Two Monte Carlo models, RAPGAP and ARIADNE, are used to estimate the background from the standard DIS processes, and the instanton-induced scattering processes are modeled by the program QCDINS. In order to extract the expected signal a multivariate data analysis technique is used. Exclusion limits on instanton production are reported, excluding cross sections larger than 2 pb. Limits are also reported as a function of parameters used to regularize the perturbative instanton model.

Primary authors: H1, Collaboration (DESY); LEVONIAN, Sergey (Deutsches Elektronen-Synchrotron Hamburg and Zeuthen (DE)); SCHMITT, Stefan (Deutsches Elektronen-Synchrotron (DE))

Presenter: H1, Collaboration (DESY)

Session Classification: Poster Session

Track Classification: Strong Interactions and Hadron Physics