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Study of jet substructure in the Photoproduction events in ep collisions at the EIC proposed energies

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Jets are studied in photoproduction produced in ep collisions at the proposed EIC energies, $\sqrt{s}= 30-140$ GeV. The contribution of the photoproduction subprocesses, direct and resolved, are studied separately. The data are generated using the event generators, PYTHIA8 and RAPGAP. The jets are reconstructed using the longitudinally invariant kT-algorithm in the standalone software package FASTJET3.

The substructure of the gluon-and-quark-initiated jets is studied and predictions are made for the subjet multiplicities in the two subprocesses. Comparison of the jet shapes in gluon versus quark jets is presented in terms fat and thin jets.

Session

Future Experiments and Detector Development

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