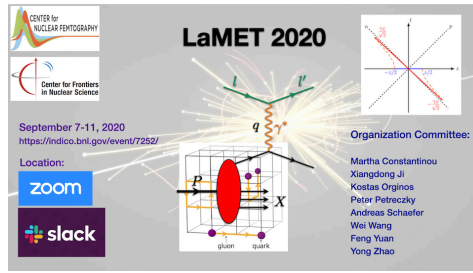


LaMET2020 Online



The banner for LaMET 2020 features a central diagram of a nucleon with a red oval representing the parton distribution function, with momenta P and X indicated. Above it, a diagram shows a quark q and a gluon g with momenta l and l' . To the right is a coordinate system with axes z and x . The banner includes logos for the Center for Nuclear Photography and the Center for Frontiers in Nuclear Science. Text on the banner includes: "September 7-11, 2020", "https://indico.bnl.gov/event/7262/", "Location: zoom", "slack", and the "Organization Committee" list: Martha Constantinou, Xiangdong Ji, Kostas Orginos, Peter Petreczky, Andreas Schafer, Wei Wang, Feng Yuan, and Yong Zhao.

Contribution ID: 20

Type: not specified

Lattice QCD calculations of TMD soft function through large-momentum effective theory

Friday, 11 September 2020 10:00 (30 minutes)

The transverse-momentum-dependent (TMD) soft function is a key ingredient in QCD factorization of Drell-Yan and other processes with relatively small transverse momentum. We present a lattice QCD study of this function at moderately large rapidity on a 2+1 flavor CLS dynamic ensemble with $a = 0.098$ fm. We extract the rapidity-independent (or intrinsic) part of the soft function through a large-momentum-transfer pseudo-scalar meson form factor and its quasi-TMD wave function using leading-order factorization in large-momentum effective theory. We also investigate the rapidity-dependent part of the soft function—the Collins-Soper evolution kernel—based on the large-momentum evolution of the quasi-TMD wave function.

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Session Classification: Session I