

粒子物理与原子核物理学学术报告学术报告

2024年06月21日 09:30 – 11:30 物质科研楼C1403

报告标题： Polarized fragmentation functions

报告人： 魏树一 教授 (山东大学)

摘要： The spin dependence of fragmentation functions is an important aspect in understanding the nonperturbative hadronization mechanism. It also offers a novel platform for studying the jet medium interaction in relativistic heavy-ion collisions. In this talk, I will briefly review the spin-dependent fragmentation functions at the leading twist. Then, I will present our progress in the quantitative study of polarized fragmentation functions and our proposals for future experiments.

报告人简介： Shu-Yi Wei got his Ph.D. in 2015 from Shandong University under the supervision of Prof. Zuo-Tang Liang. He was a postdoc at Central China Normal University (2015-2017), Ecole Polytechnique (2017-2019) and ECT* (2019-2021). He is now a researcher at Shandong University at Qingdao (2021-Now). His research interest includes the gluon saturation physics and spin-dependent fragmentation functions.

报告标题： Accessing 3-D and spin dependent fragmentation functions in $e^+ e^-$ annihilation

报告人： 陈开宝 教授 (山东建筑大学)

摘要： We present the decomposition of three-dimensional fragmentation functions (3-D FFs) for the general case of spin-1 hadron production. Semi-inclusive vector meson production in $e^+ e^-$ annihilation at high energy is an ideal place to study these 3-D FFs, especially for the tensor polarization dependent part. We present a complete kinematic analysis for this process and show that the cross section should be expressed by 81 independent structure functions. We also present the parton model calculation for the process up to twist-3 level in leading order pQCD. Results of structure functions, azimuthal asymmetries and hadron polarizations are obtained in terms of the convolution of the 3-D FFs. We further make numerical estimates for the energy dependence of the vector meson spin alignment and the longitudinal polarization of Λ hyperon.

报告人简介： 陈开宝，山东建筑大学理学院副教授，2012年本科毕业于山东大学物理学院，2017年博士毕业于山东大学理论物理专业，2017-2019年中科院理论物理研究所博士后，2019年入职山东建筑大学理学院，主要研究方向为微扰量子色动力学、核子结构与部分子强子化机制等。

