The 152th HENPIC seminar by Dr. Kai Zhou, FIAS, Nov. 4, 2021, Thursday, 10:30am (Beijing time)

Title: Deeping Learning for Inverse Problems in High Energy Nuclear Physics

Abstract: Inverse Problems occur in almost all research areas, especially in the context of basic research for the exploration of matter related to high energy nuclear physics. Due to the indirect noisy observation or even 'ill-posedness', it's usually challenging to handle the inverse problem. In this talk I will introduce some of my recent projects that utilizing deep learning techniques for solving inverse problems in high energy nuclear physics. Specifically I will talk about on-line centrality-reconstruction for CBM experiment, from bottomonium mass and width information to heavy-quark potential, reconstruction of spectral function, and learning Neutron Star Equation of State from observatory.

About the speaker: Dr. Kai Zhou received his B.Sc. degree in Physics from Xi'an Jiaotong University in 2009 and his PhD degree in Physics from Tsinghua University with "Wu You Xun" Honors in 2014 (Superviser: Prof. Pengfei Zhuang). Afterwards he did his Postdoctoral research at Goethe University Frankfurt in the Institute for Theoretical Physics (ITP) . Since 2017, he joined FIAS as Research Fellow and lead the group "Deepthinkers" focusing on Deep Learning (DL) for physics and beyond, and since 2021 he became fellow at FIAS. Dr. Zhou has a very broad interest in physics and AI/DL application in different fields, particularly developing data-driven and physics-informed deep learning methods to help physics research.