EXPERIMENTAL PHYSICS DIVISION SEMINAR

INSTITUTE OF HIGH ENERGY PHYSICS, CAS

Effective operator basis construction and its phenomenology applications

Speaker: Prof. Haolin Li

Host: Prof. Ye Chen

Time: 10:00 am, 23 July, 2026

Location: 122 Multidisciplinary Building

Indico: indico.ihep.ac.cn/event/30213

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Abstract:

In this talk, I will review the Young tensor method as a systematic approach for constructing EFT operators basis, focusing in particular on the j-basis and its physical interpretation. I will present three applications of this formalism: identifying the ultraviolet origins of EFT operators, deriving generalized 2-to-N partial-wave unitarity bounds for EFT operators, and investigating the impact of dimension-8 SMEFT operators on diboson production at the LHC. Finally I will summarize the theoretical motivations for measuring VH production at LHC.

About the speaker:

Dr. Haolin Li received his Ph.D. from the University of Massachusetts Amherst. He completed postdoctoral appointments at the Institute of Theoretical Physics, Chinese Academy of Sciences and Université catholique de Louvain in Belgium. He joined Sun Yat-sen University as an Associate Professor in 2025. His primary research focuses on effective field theory. Together with collaborators, he developed the Young tensor method, a systematic framework for constructing independent and complete operator bases within effective field theory. This approach has been applied to the correspondence between effective operators and ultraviolet theories, non-standard neutrino interactions, and collider phenomenology. His recent research interests also include symmetry breaking in strongly coupled chiral gauge theories.