

微扰量子场论及其应用前沿讲 习班

Report of Contributions

Contribution ID: 1

Type: **not specified**

Introduction to QCD

Monday, 7 July 2025 08:30 (1h 30m)

Presenter: ZHU, HuaXing (Peking University)

Contribution ID: 2

Type: **not specified**

Gauge Field Singularities

Monday, 7 July 2025 10:20 (1h 30m)

Presenter: LIU, Zelong (IHEP)

Contribution ID: 3

Type: **not specified**

电弱理论

Monday, 7 July 2025 14:00 (1h 30m)

Presenter: 张, 昊 (中国科学院高能物理研究所理论室)

Contribution ID: 4

Type: **not specified**

SCET

Monday, 7 July 2025 16:00 (1h 30m)

Presenter: SHAO, Dingyu (Fudan University)

Contribution ID: 5

Type: **not specified**

答疑

Monday, 7 July 2025 17:30 (30 minutes)

Contribution ID: 6

Type: **not specified**

Introduction to QCD

Tuesday, 8 July 2025 08:30 (1h 30m)

Presenter: ZHU, HuaXing (Peking University)

Contribution ID: 7

Type: **not specified**

Gauge Field Singularities

Tuesday, 8 July 2025 10:20 (1h 30m)

Presenter: LIU, Zelong (IHEP)

Contribution ID: 9

Type: **not specified**

散射振幅 &MI

Wednesday, 9 July 2025 14:00 (1h 30m)

Presenter: YANG, Lilin (Zhejiang University)

Contribution ID: **10**

Type: **not specified**

SCET

Tuesday, 8 July 2025 16:00 (1h 30m)

Presenter: SHAO, Dingyu (CERN, Theoretical Physics Department)

Contribution ID: **11**

Type: **not specified**

AI and physics

Wednesday, 9 July 2025 08:30 (1h 30m)

Presenter: MA, Yan-Qing (Peking University)

Contribution ID: **12**

Type: **not specified**

b-hadron physics

Friday, 11 July 2025 16:00 (1h 30m)

Presenter: WANG, Yu-Ming (TU Munich)

Contribution ID: 13

Type: **not specified**

Lam-Tung relation breaking effects within the framework of SMEFT

Wednesday, 9 July 2025 10:15 (15 minutes)

The breaking of the Lam-Tung relation in the Drell-Yan process at the LHC exhibits a long-standing tension with the Standard Model (SM) prediction at accuracy. This tension could be explained by weak dipole interactions of leptons and quarks, associated with the Z-boson within the framework of the Standard Model Effective Field Theory (SMEFT). Additionally, these weak dipole interactions could be cross-checked by measuring the violation effects of the Lam-Tung relation at future lepton colliders through similar processes. By considering different decay modes of the Z-boson, these channels exhibit distinct sensitivities to various dipole operators, providing a way to disentangle their individual effects, and the high flavor-tagging efficiencies at lepton colliders could provide strong constraints on the dipole interactions of heavy quarks.

Presenter: 李, 广辉 (中科院高能物理研究所)

Contribution ID: **14**

Type: **not specified**

AI and physics

Thursday, 10 July 2025 08:30 (1h 30m)

Presenter: MA, Yan-Qing (Peking University)

Contribution ID: 15

Type: **not specified**

b-hadron physics

Friday, 11 July 2025 10:20 (1h 30m)

Presenter: WANG, Yu-Ming (TU Munich)

Contribution ID: 16

Type: **not specified**

电弱理论

Tuesday, 8 July 2025 14:00 (1h 30m)

Presenter: 张, 昊 (中国科学院高能物理研究所理论室)

Contribution ID: 17

Type: **not specified**

隐粲五夸克分子态

Thursday, 10 July 2025 16:00 (1h 30m)

Presenter: 刘, 翔 (兰州大学)

Contribution ID: **18**

Type: **not specified**

形状因子

Thursday, 10 July 2025 10:20 (1h 30m)

Presenter: YANG, Gang (Institute of Theoretical Physics, CAS)

Contribution ID: **19**

Type: **not specified**

暗物质

Friday, 11 July 2025 14:00 (1h 30m)

Presenter: LIU, Jia (Peking University)

Contribution ID: 20

Type: **not specified**

形状因子

Wednesday, 9 July 2025 16:00 (1h 30m)

Presenter: YANG, Gang (Institute of Theoretical Physics, CAS)

Contribution ID: 21

Type: **not specified**

暗物质

Friday, 11 July 2025 08:30 (1h 30m)

Presenter: LIU, Jia (Peking University)

Contribution ID: 22

Type: **not specified**

休息

Saturday, 12 July 2025 08:00 (12 hours)

Contribution ID: 23

Type: **not specified**

PDF&FFs

Sunday, 13 July 2025 08:30 (1h 30m)

Presenter: GAO, Jun (Shanghai Jiao Tong University)

Contribution ID: 24

Type: **not specified**

PDF&FFs

Sunday, 13 July 2025 14:00 (1h 30m)

Presenter: GAO, Jun (Shanghai Jiao Tong University)

Contribution ID: 25

Type: **not specified**

对撞机唯象

Sunday, 13 July 2025 16:00 (1h 30m)

Presenter: YAN, Bin (IHEP)

Contribution ID: 26

Type: **not specified**

对撞机唯象

Sunday, 13 July 2025 10:20 (1h 30m)

Presenter: YAN, Bin (IHEP)

Contribution ID: 27

Type: **not specified**

TMDs and QCD

Monday, 14 July 2025 08:30 (1h 30m)

Presenter: LIU, Xiaohui (Beijing Normal University)

Contribution ID: 28

Type: **not specified**

高能实验

Monday, 14 July 2025 10:20 (1h 30m)

Presenter: LI, Qiang (School of physics, Peking University)

Contribution ID: 29

Type: **not specified**

手征微扰理论

Monday, 14 July 2025 14:00 (1h 30m)

Presenter: GUO, Feng-Kun (ITP, CAS)

Contribution ID: 30

Type: **not specified**

手征微扰理论

Monday, 14 July 2025 16:00 (1h 30m)

Presenter: GUO, Feng-Kun (ITP, CAS)

Contribution ID: **31**

Type: **not specified**

TMDs and QCD

Tuesday, 15 July 2025 08:30 (1h 30m)

Presenter: LIU, Xiaohui (Beijing Normal University)

Contribution ID: 32

Type: **not specified**

高能实验

Tuesday, 15 July 2025 10:20 (1h 30m)

Presenter: LI, Qiang (Peking Univ.)

Contribution ID: 33

Type: **not specified**

乘车去章丘

Tuesday, 15 July 2025 14:00 (1h 30m)

Contribution ID: **34**

Type: **not specified**

Madgraph

Wednesday, 16 July 2025 08:30 (1h 30m)

Presenter: SHAO, Hua-Sheng (LPTHE Paris)

Contribution ID: 35

Type: **not specified**

Collider Probes for BSM physics

Wednesday, 16 July 2025 10:20 (1h 30m)

Presenter: LIU, Zhen (University of Minnesota)

Contribution ID: **36**

Type: **not specified**

Madgraph

Thursday, 17 July 2025 14:00 (1h 30m)

Presenter: SHAO, Hua-Sheng (LPTHE Paris)

Contribution ID: 37

Type: **not specified**

Collider Probes for BSM physics

Thursday, 17 July 2025 10:20 (1h 30m)

Presenter: LIU, Zhen (University of Minnesota)

Contribution ID: **38**

Type: **not specified**

Heavy-Ion overview

Wednesday, 16 July 2025 14:00 (1h 30m)

Presenter: QIN, Guang-You (Central China Normal University)

Contribution ID: 39

Type: **not specified**

SMEFT staus and recent progress 专题

Wednesday, 16 July 2025 16:00 (1h 30m)

Presenter: LIAO, Yi (IQM, South China Normal University)

Contribution ID: 40

Type: **not specified**

Hard probes of nuclear matter and Jet tomography

Thursday, 17 July 2025 16:00 (1h 30m)

Presenter: SADOFYEV, Andrey (LIP, Lisbon)

Contribution ID: 41

Type: **not specified**

因子化专题

Friday, 18 July 2025 08:30 (1h 30m)

Presenter: MA, Jian-Ping (Institute of Theoretical Physics, CAS)

Contribution ID: 42

Type: **not specified**

Heavy ion overview

Thursday, 17 July 2025 08:30 (1h 30m)

Presenter: QIN, Guang-You (Central China Normal University)

Contribution ID: 43

Type: **not specified**

EFT 专题

Friday, 18 July 2025 10:20 (1h 30m)

Presenter: JIA, Yu (IHEP)

Contribution ID: 44

Type: **not specified**

EFT 专题

Saturday, 19 July 2025 10:20 (1h 30m)

Presenter: JIA, Yu (IHEP)

Contribution ID: 45

Type: **not specified**

Bread & Butter Physics at the LHC

Friday, 18 July 2025 14:00 (1h 30m)

Presenter: YUAN, C.-P.

Contribution ID: 46

Type: **not specified**

PMC

Friday, 18 July 2025 16:00 (1h 30m)

Presenter: WU, Xing-Gang (Chongqing University)

Contribution ID: 47

Type: **not specified**

LAMET, Lattice 专题

Saturday, 19 July 2025 08:30 (1h 30m)

Presenter: WANG, Wei (Shanghai JiaoTong University)

Contribution ID: 48

Type: **not specified**

Hardprobes of nuclear matter and Jet tomography

Saturday, 19 July 2025 14:00 (1h 30m)

Presenter: SADOFYEV, Andrey (LIP, Lisbon)

Contribution ID: 49

Type: **not specified**

Loop calculations GKZ 专题

Saturday, 19 July 2025 16:00 (1h 30m)

Presenter: 冯, 太傅 (河北大学物理系)

Contribution ID: 50

Type: **not specified**

SM precision test

Sunday, 20 July 2025 08:30 (1h 30m)

Presenter: HE, Hong-Jian (Shanghai Jiao Tong University)

Contribution ID: 51

Type: **not specified**

机器学习与新物理

Sunday, 20 July 2025 10:20 (1h 30m)

Presenter: YANG, Jin Min (ITP, Beijing)

Contribution ID: 52

Type: **not specified**

散射振幅 &MI

Thursday, 10 July 2025 14:00 (1h 30m)

Presenter: YANG, Lilin (Zhejiang University)

Contribution ID: 53

Type: **not specified**

答疑

Tuesday, 8 July 2025 17:30 (30 minutes)

Contribution ID: 54

Type: **not specified**

答疑

Wednesday, 9 July 2025 17:30 (30 minutes)

Contribution ID: 55

Type: **not specified**

答疑

Thursday, 10 July 2025 17:30 (30 minutes)

Contribution ID: 56

Type: **not specified**

答疑

Friday, 11 July 2025 17:30 (30 minutes)

Contribution ID: 57

Type: **not specified**

答疑

Sunday, 13 July 2025 17:30 (30 minutes)

Contribution ID: 58

Type: **not specified**

答疑

Monday, 14 July 2025 17:30 (30 minutes)

Contribution ID: 59

Type: **not specified**

答疑

Wednesday, 16 July 2025 17:30 (30 minutes)

Contribution ID: **60**

Type: **not specified**

答疑

Thursday, 17 July 2025 17:30 (30 minutes)

Contribution ID: **61**

Type: **not specified**

答疑

Friday, 18 July 2025 17:30 (30 minutes)

Contribution ID: 62

Type: **not specified**

答疑

Saturday, 19 July 2025 17:30 (30 minutes)

Contribution ID: 63

Type: **not specified**

Two-loop master integrals for W-pair production at CEPC and LHC

Wednesday, 9 July 2025 10:30 (15 minutes)

The discrepancy between the CDF measurement and the Standard Model theoretical prediction for the W -boson mass underscores the importance of conducting high-precision studies on the W boson. This presentation focuses on the analytic calculation of the two-loop master integrals of the W-pair production at CEPC and LHC. We derive a set of canonical master integrals for the integral families in the W-pair production at CEPC. We express all these canonical master integrals as Taylor series in ϵ up to ϵ^4 , with coefficients articulated in terms of Goncharov polylogarithms up to weight four after the rationalization of all square roots for the on-shell W-pair production cases. While, for the off-shell W-pair production, six of the master integrals at weight 4 still involve square roots that cannot be rationalized. They are ultimately expressed in terms of elliptic multiple polylogarithms. As a byproduct, we apply these analytic results to calculate the NNLO mixed QCD-EW correction to the W -pair production at electron-positron colliders. Our numerical results reveal that the mixed QCD-EW corrections can reach up to 1%, underscoring their potential phenomenological significance. In the study of two-loop MIs for NNLO QCD corrections to $t\bar{t}$ -pair production at the LHC, we investigate the contribution of MIs with a closed top-quark loop, and encounter elliptic Feynman integrals within a specific sector. By analyzing the maximal cut of integrals within this elliptic sector, we obtain the elliptic curves related to the elliptic sector. Utilizing the periods of elliptic curves, we construct a linear basis satisfying differential equations in a linear form with respect to ϵ , and successfully represent these MIs in as iterated integrals.

Presenter: 黎, 哲

Contribution ID: 64

Type: **not specified**

Automated two-loop EFT matching by FeAmGen

Wednesday, 9 July 2025 10:45 (15 minutes)

Presenter: 李, 文第

Contribution ID: 65

Type: **not specified**

Coupled-channel study of doubly heavy exotic hadrons

Wednesday, 9 July 2025 11:00 (15 minutes)

Presenter: 任, 雨山

Contribution ID: 66

Type: **not specified**

NNNLL soft gluon resummation for $t\bar{t}$ production at the LHC

Wednesday, 9 July 2025 11:15 (15 minutes)

Presenter: 丁, 家乐

Contribution ID: 67

Type: **not specified**

Planar property and long-range azimuthal correlation in epem annihilation

Wednesday, 9 July 2025 11:30 (15 minutes)

Presenter: 代, 月晟

Contribution ID: 68

Type: **not specified**

休息

Contribution ID: 69

Type: **not specified**

拍照

Monday, 7 July 2025 08:10 (15 minutes)

Contribution ID: 70

Type: **not specified**

领导致辞

Monday, 7 July 2025 08:00 (10 minutes)

Contribution ID: 71

Type: **not specified**

暑期学校注意事项

Monday, 7 July 2025 08:25 (5 minutes)

Contribution ID: 72

Type: **not specified**

自由讨论

Sunday, 20 July 2025 14:00 (4 hours)