

Opportunities and Ideas at the QCD Frontier

Monday, 7 April 2025 - Friday, 11 April 2025

中国高等科学技术中心

Book of Abstracts

Contents

Trilogy of hadron event reconstruction at higgs factory	1
Forward particle production in pA collision	1
基于强子对撞实验的新 PDF 研究	1
From boosted $H \rightarrow WW^*$ tagger to inclusively pre-trained jet models at the LHC	1
Fragmentation functions of charged hadrons at NNLO and constraints on proton PDFs	1
AI for discovery	1
Challenges and opportunities with jets, from small to large system	1
The impact of data from future lepton colliders on light hadrons fragmentation functions	2
“Do you need a distance?” Optimal Transport for Jet Physics	2
QCD challenges at LHC	2
Parton Spin Correlation in Higgs Decay: Tools and Challenges	2
Fragmentation Modeling in Hadronization	2
Perturbative QCD precision calculation	2
Precise predictions on Higgs decays to bottom quarks and gluons	3
Status and perspect on EEC	3
Glueball & Exotic	3
QCD issues in hypo decay	3
Determination of the Strong Coupling Constant from Inclusive Semi-leptonic B and D Meson Decays	3
Global analysis of fragmentation functions to light neutral hadrons	3
QCD relevant topics at LHASSO	3
Jet origin identification at LHC energy	4
Lattice QCD	4
Chiral Perturbation Theory with Axions	4

Bigbang-Proton: A general purpose scientific multitask learner	4
--	---

AI with jet tagging and reconstruction / 1

Trilogy of hadron event reconstruction at higgs factory

Corresponding Author: ruanmq@ihep.ac.cn

QCD at Precision Frontier / 3

Forward particle production in pA collision

Corresponding Author: xiaohuiliu@gmail.com

QCD at High Energy Frontier, PDFs / 4

基于强子对撞实验的新 PDF 研究

Corresponding Author: yangsq@ustc.edu.cn

AI with jet tagging and reconstruction / 5

From boosted $H \rightarrow WW^*$ tagger to inclusively pre-trained jet models at the LHC

Corresponding Author: fudw@pku.edu.cn

QCD at High Energy Frontier, PDFs / 6

Fragmentation functions of charged hadrons at NNLO and constraints on proton PDFs

Corresponding Author: xiaominshen@impcas.ac.cn

AI with jet tagging and reconstruction / 9

AI for discovery

Corresponding Author: yqma@pku.edu.cn

AI with jet tagging and reconstruction / 10

Challenges and opportunities with jets, from small to large system

Corresponding Author: yaxian.mao@mail.ccnu.edu.cn

QCD at High Energy Frontier, PDFs / 11

The impact of data from future lepton colliders on light hadrons fragmentation functions

Corresponding Author: zb0429@sjtu.edu.cn

AI with jet tagging and reconstruction / 12

“Do you need a distance?” Optimal Transport for Jet Physics

Corresponding Author: tianjiresearch@gmail.com

QCD at High Energy Frontier, PDFs / 14

QCD challenges at LHC

Corresponding Author: shaodingyu@gmail.com

QCD at High Energy Frontier, PDFs / 15

Parton Spin Correlation in Higgs Decay: Tools and Challenges

Corresponding Author: 1875355723@qq.com

QCD at High Energy Frontier, PDFs / 16

Fragmentation Modeling in Hadronization

Corresponding Author: haitao.li@sdu.edu.cn

QCD at High Energy Frontier, PDFs / 17

Perturbative QCD precision calculation

Corresponding Author: longchen@sdu.edu.cn

QCD at High Energy Frontier, PDFs / 18

Precise predictions on Higgs decays to bottom quarks and gluons

Corresponding Author: j.wang@sdu.edu.cn

QCD at Precision Frontier / 19

Status and perspect on EEC

Corresponding Author: zhuhx@pku.edu.cn

QCD at Precision Frontier / 20

Glueball & Exotic

Corresponding Author: huangyp@ihep.ac.cn

QCD at Precision Frontier / 21

QCD issues in hypo decay

Corresponding Author: zxrong@ustc.edu.cn

QCD at Precision Frontier / 22

Determination of the Strong Coupling Constant from Inclusive Semi-leptonic B and D Meson Decays

Corresponding Author: cheyuzhi@ihep.ac.cn

QCD at Precision Frontier / 23

Global analysis of fragmentation functions to light neutral hadrons

Corresponding Author: liucy1999@sjtu.edu.cn

AI with jet tagging and reconstruction / 24

QCD relevant topics at LHASSO

Corresponding Author: zhangss@ihep.ac.cn

AI with jet tagging and reconstruction / 25

Jet origin identification at LHC energy

Corresponding Author: mingrui.zhao@mail.labz0.org

QCD Vacuum & Lattice QCD / 26

Lattice QCD

Corresponding Author: chen@ihep.ac.cn

QCD Vacuum & Lattice QCD / 27

Chiral Perturbation Theory with Axions

Corresponding Author: fkguo@itp.ac.cn

28

Bigbang-Proton: A general purpose scientific multitask learner