第十届中国 LHC 物理会议（CLHCP2024 青岛）

Wednesday, 13 November 2024 - Sunday, 17 November 2024

山东省青岛市鳌山湾 (Aoshan Bay, Qingdao, Shandong)

Book of Abstracts

Contents

1

Improved constraint on Higgs boson self-couplings with quartic and cubic power dependence in the cross section

Authors: Dan Zhao[1]; Haitao Li[2]; Jian Wang[1]; Xiao Zhang[1]; Zongguo Si[3]

[1] *Shandong University*

[2] *SHANDONG UNIVERSITY*

[3] *ShanDong University*

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

Precise information on the Higgs boson self-couplings provides the foundation for unveiling the electroweak symmetry breaking mechanism.
Due to the scarcity of Higgs boson pair events at the LHC, only loose limits have been obtained.
This is based on the assumption that the cross section is a quadratic function of the trilinear Higgs self-coupling in the κ framework.
However, if higher-order corrections of virtual Higgs bosons are included,
the function form would dramatically change.
In particular, new quartic and cubic power dependence on the trilinear Higgs self-coupling would appear.
To get this new function form, we have
performed a specialized renormalization procedure suitable for tracking all the Higgs self-couplings in each calculation step.
Moreover, we introduce renormalization of the scaling parameter in the κ framework to ensure the cancellation of all ultraviolet divergences.
With the new function forms of the cross sections in both the gluon-gluon fusion and vector boson fusion channels,
the upper limit of $\kappa_{\lambda_3} = \lambda_{3\mathrm{H}}/\lambda_{3\mathrm{H}}^{\mathrm{SM}}$ by the ATLAS (CMS) collaboration is reduced from 6.6 (6.49) to 5.4 (5.37).
However, it is still hard to extract a meaningful constraint on the quartic Higgs self-coupling $\lambda_{4\mathrm{H}}$ from Higgs boson pair production data.
We also present the invariant mass distributions of the Higgs boson pair at different values of κ_λ, which could help to set optimal cuts in the experimental analysis.

3

Lam-Tung relation breaking in Z boson production as a probe of SMEFT effects

Author: Bin Yan[1]

[1] *IHEP*

Corresponding Author: yanbin@ihep.ac.cn

The violation of Lam-Tung relation in the high-$p_T^{\ell\ell}$ region of the Drell-Yan
process at the LHC presents a long-standing discrepancy with the standard model prediction at $\mathcal{O}(\alpha_s^3)$ accuracy. In this talk, we employed a model-independent analysis to
investigate this anomaly within the framework of the Standard Model Effective Field Theory (SMEFT). Our findings revealed that the leading contributions from SMEFT to this violation appear at the $1/\Lambda^4$ order with $\mathcal{O}(\alpha_s)$ accuracy in QCD interaction. Notably, we demonstrated that the quadratic
effect of dimension-6 dipole operators, associated with the Z boson, dominates the breaking effects induced by
various dimension-6 and dimension-8 operators. This provides a compelling explanation for the observed discrepancy
with the Standard Model predictions at the LHC without assuming other new physics operators, and thereby offers the
potential to extract valuable information about the underlying physics at the TeV scale.

4

QCD LCDAs of Heavy Mesons from boosted HQET

Author: 焰冰魏 [1]

[1] *BJUT*

Corresponding Author: yanbing.wei@bjut.edu.cn

Light-cone distribution amplitudes (LCDAs) frequently arise in factorization theorems involving light and heavy mesons. The QCD LCDA for heavy mesons includes short-distance physics at energy scales of the heavy-quark mass. We achieve the separation of this perturbative scale from the purely hadronic effects by matching the QCD LCDA to the convolution of a perturbative function with the universal, quark- mass independent LCDA defined in heavy-quark effective theory. This factorization allows to resum potentially large logarithms between $\Lambda_{\rm QCD}$ and m_Q as well as between m_Q and the scale Q of the hard process in the production of boosted heavy mesons at colliders. As an application we derive new theoretical predictions for the branching ratio of the decay $W^{\pm} \to B^{\pm}\gamma$. Furthermore, we provide phenomenological models for the QCD LCDAs of both the B and D mesons expressed as expansions in Gegenbauer polynomials.

5

Study the structure of $X(3872)$ from its lineshape

Author: hongge xu[1]

[1] *HuBei University of Education*

Corresponding Author: 15171452928@163.com

We fit the invariant mass distribution of $X(3872) \to J/\psi\pi^+\pi^-$ from LHCb and $X(3872) \to D^0\overline{D}^{0*}$ from Belle using the propagator for S-wave threshold states in effective field theory. In this way, we can directly determine the Z which is the probability of finding the compact component in $X(3872)$. We find that Z is a non-vanishing value within error, which strongly supports that $X(3872)$ has a compact short-distant core.

6

Probing electroweak phase transitions at the LHC and future colliders

Author: Ke-Pan (柯盼) Xie (谢)[1]

[1] *Beihang University (北京航空航天大学)*

Corresponding Author: kpxie@buaa.edu.cn

I will review and discuss various approaches to probe the first-order electroweak phase transition at the colliders.

7

Probing heavy meson lightcone distribution amplitudes with heavy quark spin symmetry

Authors: Jun Zeng[1]; Wei Wang[2]; Yanbing Wei[3]; Zhi-Fu Deng[4]

[1] *SJTU*

[2] *Shanghai Jiao Tong University*

[3] *BJUT*

[4] *The Chinese University of Hong Kong, Shenzhen*

Corresponding Author: zengj@sjtu.edu.cn

We illustrate that the leading-twist light-cone distribution amplitudes (LCDAs) defined in heavy-quark effective theory (HQET) can be determined through lattice simulations of quasi-distribution amplitudes (quasi-DAs) with a large momentum component P^z. Exploiting heavy-quark spin symmetry, we show that the LCDAs for a heavy pseudoscalar and vector meson in the context of HQET exhibit degeneracy, and the degeneracy allows for the utilization of quasi DAs for both pseudoscalar and vector mesons on the lattice. We then derive the relevant short-distance coefficients for the matching between LCDAs defined with QCD fields and HQET LCDAs at the one-loop level. The incorporation of these three quasi DAs can provide possible insight into power corrections. Discrepancies between the corresponding results offer a valuable perspective for estimating power corrections within the system which are imperative for precise investigations into heavy-meson LCDAs in the future particularly in the context of lattice QCD.

9

Determining heavy meson light-cone distribution amplitudes from lattice QCD

Author: Han Xue-Ying[1]

[1] *IHEP*

Corresponding Author: hanxy@ihep.ac.cn

We present a novel method to compute light-cone distribution amplitudes (LCDAs) of heavy meson defined in heavy quark effective theory (HQET). Our method utilizes quasi distribution amplitudes (quasi-DAs) with a large momentum component P^z. By sequentially integrating out P^z and m_H, one can disentangle different dynamical scales. Integrating out P^z allows to connect quasi-DAs to QCD LCDAs, and then integrating out m_H enables to relate QCD LCDAs to HQET LCDAs.

10

LHC Physics Tools for Precision Gravitational Wave Physics

Author: Zhengwen Liu[1]

[1] *Southeast University*

Corresponding Author: zhengwen.liu@seu.edu.cn

High-accuracy theoretical predictions for the motion of compact binary systems are essential for maximizing the discovery potential of current and future gravitational-wave observations, such as LIGO-Virgo-Kagra, Taiji, TianQin, and Einstein Telescope. Modern theoretical tools initially invented for LHC physics, such as effective field theory and multi-loop Feynman integrals, has proven exceptionally powerful for analytically solving the classical two-body problem. This talk explores

recent advancements in modern perturbative field theory and its application in computing gravitational inspiral dynamics in the post-Minkowskian approximation.

11

Exotic states production in nuclear collisions at the LHC energy

Author: Zhilei SHE[1]

[1] *Wuhan Textile University*

Corresponding Author: shezhilei@cug.edu.cn

The production of exotic hadrons, such as $\mathrm{X}(3872)$, in pp collisions at $\sqrt{s} = 2.76\,\mathrm{TeV}$ is investigated by the parton and hadron cascade model {\footnotesize PACIAE}. In the simulation the final partonic state (Quark Matter, QM) and the final hadronic state (Hadron Mater, HM) are continuously processed and recorded. The $\mathrm{X}(3872)$ compact tetraquark state and loose molecular state are, respectively, coalesced and recombined in the QM and HM with the quantum statistical mechanics inspired dynamically constrained phase-space coalescence model. The formation time, velocity and temperature of QM (tetraquark state) and HM (molecular state) are proposed for the first time as identifying criteria between the two states. Our results in transverse momentum spectrum and rapidity distribution, etc. show a significant discrepancy between the two states and confirm that they are also valuable criteria identifying the $\mathrm{X}(3872)$ compact tetraquark state or molecular state.

Recently, this approach has been exteded to other exotic states, like glueball-like particle $\mathrm{X}(2370)$, T_{cc}, Sexaquarks, etc.

12

Quantum-Annealing-Inspired algorithms for future colliders

Author: Hideki (英希) Okawa (大川)[1]

[1] *IHEP*

Corresponding Author: okawa@ihep.ac.cn

Track and jet reconstruction are crucial components in high energy collider experiments. It is known for high consumption of computing resources, and various investigations are ongoing to cope with this challenge. These reconstruction tasks can be considered as quadratic unconstrained binary optimization (QUBO) problems, which are suitable to be solved with quantum algorithms. I will present recent studies on quantum-annealing-inspired algorithms, in particular the simulated bifurcation (SB) algorithms. They can handle significantly large data at high speed; e.g. as much as four orders of magnitude faster than the simulated annealing for the track reconstruction, demonstrated in our previous study. SB also provides promising performance on jet reconstruction.

15

CPV in FCNU decays

Author: 可陈李 N$^{\mathrm{one}}$

Corresponding Author: kcli@mails.ccnu.edu.cn

This talk will focus on the study of CP violation in Flavor-Changing Neutral Current (FCNC) decays, exploring how these processes provide a sensitive probe for testing the Standard Model and searching for new physics. We will review key measurements and experimental techniques used to study CP violation in rare decays, highlighting recent results from the LHCb experiment and their implications for constraining theoretical models.

18

Jet Tagging with More-Interaction Particle Transformer

Author: Kun Wang[1]

[1] *University of Shanghai for Science and Technology*

Corresponding Author: kwang@usst.edu.cn

Based on arxiv:2407.08682, we present the More-Interaction Particle Transformer (MIParT), a novel deep learning neural network designed for jet tagging. This framework incorporates our own design, the More-Interaction Attention (MIA) mechanism, which increases the dimensionality of particle interaction embeddings. We tested MIParT using the top tagging and quark-gluon datasets. Our results show that MIParT not only matches the accuracy and AUC of LorentzNet and a series of Lorentz-equivariant methods, but also significantly outperforms the ParT model in background rejection. Specifically, it improves background rejection by approximately 25% at a 30% signal efficiency on the top tagging dataset and by 3% on the quark-gluon dataset. Additionally, MIParT requires only 30% of the parameters and 53% of the computational complexity needed by ParT, proving that high performance can be achieved with reduced model complexity. For very large datasets, we double the dimension of particle embeddings, referring to this variant as MIParT-Large (MIParT-L). We find that MIParT-L can further capitalize on the knowledge from large datasets. From a model pre-trained on the 100M JetClass dataset, the background rejection performance of the fine-tuned MIParT-L improved by 39% on the top tagging dataset and by 6% on the quark-gluon dataset, surpassing that of the fine-tuned ParT. Specifically, the background rejection of fine-tuned MIParT-L improved by an additional 2% compared to the fine-tuned ParT. The results suggest that MIParT has the potential to advance efficiency benchmarks for jet tagging and event identification in particle physics.

19

Jet Origin Identification and Quantum-based Jet clustering

Author: 永峰朱 N[one]

Corresponding Author: zhuyf@ihep.ac.cn

Jet Origin Identification (JOI), which classifies jets into five quarks, five anti-quarks, and gluons, was introduced and successfully implemented using ParticleNet, achieving unprecedented performance in measuring the rare and exotic decays of the Higgs boson at the proposed Circular Electron-Positron Collider (CEPC). Additionally, we developed a quantum-based jet clustering algorithm utilizing the Quantum Approximate Optimization Algorithm (QAOA), demonstrating performance comparable to classical jet clustering algorithms in small-scale problems.

20

Complete analytic and expansion formulae for the muon magnetic dipole moment

Author: Shi-Ping He[1]

[1] *Taiyuan University of Technology*

Corresponding Author: heshiping1990@163.com

Since announcement of the muon g-2 anomaly, plenty of papers have devoted to this anomaly. The approximate formulae are always adopted when determining the new physics contributions, while clear scope of applications are always absent. This talk is dedicated to the comprehensive analytical results and approximations for the canonical interactions at one-loop level. We not only collect the analytic and approximate expressions for the scalar and vector mediator cases, but also investigate the physics implications.

24

The Effects of Multiple-Parton Interactions on the Production of Charged Particles and Pentaquarks

Authors: 浩杨 [1]; Arthur Moraes[2]

[1] *Xi\'an Jiaotong-Liverpool University*

[2] *XJTLU*

Corresponding Author: hao.yang18@student.xjtlu.edu.cn

This study investigates the Multiple-Parton Interaction (MPI) sensitivity of several charged particle observables, including the charged pseudorapidity distribution, the average transverse momentum as function of charged multiplicity, and the production of individual particle species. The MPI effects on pentaquark production are also studied, for three possible resonance states, $P_c^+(4312)$, $P_c^+(4440)$ and $P_c^+(4457)$. Using the Monte Carlo event generator PYTHIA8, we generate the invariant mass spectrum of these resonances, as decay products of Λ_b^0 and molecular states using hadronic rescattering. Furthermore, two approaches to simulate pentaquark production are compared.

25

Direct charged and neutral Higgs searches with LHC

Author: 伟苏 [1]

[1] *Sun Yat-Sen University*

Corresponding Author: suwei26@mail.sysu.edu.cn

we would like to introduce our recent work about BSM Higgs searches at LHC, in the framework of 2HDM. The study will include both the neutral and charged Higgs studies. including various BSM Higgs production and decay channels, as well as the exotic Higgs decays.

26

Electroweak Corrections to Double Higgs Production at the LHC

Authors: 环宇毕 [1]; 礼鸿黄 [1]; 瑞钧黄 [1]; 滟青马 [1]; 怀敏余 [1]

[1] 北京大学

Corresponding Author: bihy@pku.edu.cn

We present the results for the complete next-to-leading order electroweak corrections to pp → HH at the Large Hadron Collider, focusing on the dominant gluon-gluon fusion process. While the corrections at the total cross-section level are approximately −4%, those near the energy of HH production threshold exceed +15%, and corrections at the high-energy region are around −10%, leading to a shape distortion for the differential distributions. Our findings substantially diminish the theoretical uncertainties associated with this pivotal process, providing valuable input for understanding the shape of the Higgs boson potential upon comparison with experimental measurements.

27

Search for nearly-degenerate higgsinos using forward detectors at the LHC

Author: 航周 [1]

[1] 常州大学

Corresponding Author: zhouhang@cczu.edu.cn

Supersymmetric models with nearly-degenerate light higgsinos provide a consistent solution to the naturalness problem under rigorous constraints from current experimental searches for sparticles. However, it is challenging to probe the compressed scenarios at collider experiments due to the hard-to-detect soft final states. To overcome this issue, strategies have been proposed to take advantage of the photon fusion along the ultraperipheral collision at the Large Hadron Collider, which are feasible with the forward detectors installed at the ATLAS and CMS detectors. In this report, I will present our recent work on search strategies for the chargino pair production via photon fusion at the 13 TeV LHC, through both full-leptonic and semi-leptonic channels, realizing a good sensitivity on the chargino mass $m_{\tilde{\chi}_1^\pm}$ and its mass difference with the neutralino $\Delta m(\tilde{\chi}_1^\pm, \tilde{\chi}_1^0)$.

30

The bubble wall velocity: from the local Boltzmann equations to the non-local Kadanoff-Baym equations

Author: Jiang Zhu[1]

Co-author: Michael J.˜Ramsey-Musolf

[1] *Tsung-Dao Lee Institute, Shanghai jiao tong Univercity*

Corresponding Author: jackpotzhujiang@gmail.com

There are two common methods to compute the bubble wall velocity for the cosmological phase transitions: the fluid method, which analyzes the macroscopic fluid system, and the local Boltzmann equations; the microscopic method, which studies the force acting on the bubble wall by the multi-particle bubble interactions. However, those two methods are not consistent with each other. In this study, we present a comprehensive analysis of the friction force and velocity for the bubble wall in the early universe cosmological phase transitions. We offer a systematic framework to solve that inconsistency between two common methods by rederiving the Boltzmann equation from the quantum field theory in the presence of the background bubble field. Furthermore, to show the self-consistency of this framework, we derive this framework from the first-principle non-local Kadanoff-Baym equations. We apply this framework to compute the new friction force from the $2 \to 2$ scattering process in light to heavy and its inverse process in $\phi^2\Phi^2$ theory and find a γ_w-linearly related friction force that eliminates the run-aways bubble configurations in two-step phase transitions.

32

Shedding Light on Hadronization by Quarkonium Energy Correlator

Authors: 安平陈 [1]; Xiaohui Liu[2]; 滟青马 N[one]

[1] 江西师范大学

[2] *Beijing Normal University*

Corresponding Author: chenanping@pku.edu.cn

We propose to measure the energy correlator in quarkonium production, which tracks the energy deposited in the calorimeter χ-angular distance away from the identified quarkonium. The observable eliminates the need for jets while sustaining the perturbative predictive power. Analyzing the power correction to the energy correlator, we demonstrate the novel observable supplies a unique gateway to probing the hadronization, especially when $\cos\chi > 0$ in the quarkonium rest frame where the perturbative emissions are depleted due to the dead-cone effects. We expect the quarkonium energy correlator to add a new dimension to quarkonium studies.

33

CP asymmetries corresponding to the imaginary parts of the interference terms in cascade decays of heavy hadrons

Authors: Zhen-Hua（振华）Zhang（张）[1]; 健宇杨 N[one]; 敬娟祁 N[one]

[1] *University of South China*

Corresponding Author: zhangzh@mail.bnu.edu.cn

A mechanism of generating CP violation through the imaginary part of the interference of two amplitudes is proposed. This mechanism has shown clear evidence in decays such as B±⟶π±π+π−. The proposed mechanism is helpful in searching for CP violation in bottom and charmed baryon decay processes.

34

Probing Type-I 2HDM light Higgs in the top-pair-associated diphoton channel

Authors: 亚博董 [1]; 坤王 N[one]; 经亚朱 N[one]

[1] 河南大学

Corresponding Author: 3602487781@qq.com

We investigate the Type-I Two-Higgs-Doublet Model (2HDM-I) as a potential explanation for the 95 GeV diphoton excess observed at the LHC, and assess the feasibility of discovering a 95 GeV Higgs boson at future hadron colliders. Our analysis shows that the direct Higgs search data strongly constrain the Higgs-mixing angle parameter. Subsequent collider simulations focus on the $pp \to t(\to W^+b)\bar{t}(\to W^-\bar{b})h(\to \gamma\gamma)$ process and its relevant backgrounds on HL-LHC, HE-LHC and FCC-hh. For different colliders, statistical significances of 2σ and 5σ can be achieved at different integrated luminosity. At the HL-LHC, certain samples can achieve a significance of 5σ with an integrated luminosity of $L = 706$ fb^{-1}.

35

The SM expected branching ratio for $h \to \gamma\gamma$ and an excess for $h \to Z\gamma$

Authors: Xiao-Gang He[1]; Zhonglv Huang[2]; Ming-Wei Li[1]; Chia-Wei Liu[3]

[1] *Shanghai Jiao Tong University*

[2] *TDLI*

[3] *Tsung-Dao Lee Institute,Shanghai Jiao Tong University*

Corresponding Author: ron1a2l3d4@gmail.com

The recent measurements of $h \to Z\gamma$ from ATLAS and CMS show an excess of the signal strength $\mu_Z = (\sigma \cdot calB)_{\rm obs}/(\sigma \cdot calB)_{\rm SM} = 2.2 \pm 0.7$, normalized as 1 in the standard model (SM). If confirmed, it would be a signal of new physics (NP) beyond the SM. We study NP explanation for this excess. In general, for a given model, it also affects the process $h \to \gamma\gamma$. Since the measured branching ratio for this process agrees well with the SM prediction, the model is severely constrained. We find that a minimally fermion singlets and doublet extended NP model can explain simultaneously the current data for $h \to Z\gamma$ and $h \to \gamma\gamma$. There are two solutions. Although both solutions enhance the amplitude of $h \to Z\gamma$ to the observed one, in one of the solutions the amplitude of $h \to \gamma\gamma$ flips sign to give the observed branching ratio. This seems to be a contrived solution although cannot be ruled out simply using branching ratio measurements alone. However, we find another solution that naturally enhances $h \to Z\gamma$ to the measured value, but keeps the amplitude of $h \to \gamma\gamma$ close to its SM prediction. We also comment on the phenomenology associated with these new fermions.

36

The Forgotten Supersymmetry Signals: Long-Lived SUSY particles inside LHC

Authors: Jinmian Li[1]; Tianjun Li[2]; 文星张 [3]; Junle PeiN[one]

[1] 四川大学

[2] *Institute of Theoretical Physics, Chinese Academy of Sciences*

[3] *Hebei University*

Corresponding Author: zhangwenxing15@mails.ucas.ac.cn

Supersymmetric signals have been widely searched for at the LHC, but unfortranately there are no obvious signals beyond the standard model have been found. Does the natural supersymmetry actually exist or not at the TeV scale， or did the experimentalists forget some important signals at the LHC? In this talk, I will introduce some of our previous works that focus on the long-lived SUSY particles searches at the LHC, especially the recent publication focusing on the NLSP searches, the gravitino or axino searches, and show how the final discovery/exclusion bounds are much highly optimized.

37

Parity Violation on Quantum Entanglement and Bell Nonlocality

Authors: Yong Du[1]; xiao-gang he[2]; Chia-Wei Liu[3]; Jian-Ping Ma[4]

[1] *TD Lee Institute*

[2] *Shanghai Jiao Tong University*

[3] *TDLI-SJTU*

[4] *ITP-CAS*

Corresponding Author: yongdu5@sjtu.edu.cn

Collider tests of quantum entanglement (QE) and Bell nonlocality (BN) have offered a new opportunity for deepening our understanding on quantum mechanics. While most of the existing work on this topic has been focusing on parity (P) conserving interactions, I will address in this talk how P violation could change the spin correlations of the spin-half bipartite systems, thus modifying the predictions of both QE and BN. In addition, spin interactions with the environment has been largely overlooked in literature, I will also show with promising candidates at BESIII and a lepton collider how this overlooked effect is however essential for a genuine determination of P and CP symmetries.

Based on arXiv: 2409.15418

40

Nonperturbative study of the electroweak phase transition in the real scalar singlet extended Standard Model

Authors: Guotao Xia[1]; Lauri Niemi[2]; Michael Ramsey-Musolf[3]

[1] *TDLI*

[2] *Helsinki Institute of Physics*

[3] *Shanghai Jiao Tong University*

Corresponding Author: xiagt-summer@sjtu.edu.cn

In this talk, we explore the electroweak phase transition in the real singlet scalar extension of the Standard Model through a nonperturbative lattice study. We examine both heavy and light singlet-like scalar scenarios, focusing on non-zero singlet-doublet mixing angles.

The presentation begins with an overview of the lattice methods relevant to phase transition analysis. We then analyze how thermodynamic properties depend on order parameters. In the heavy scalar regime, we find that the transition is a crossover for small mixing angles, despite an energy barrier in the potential, while it becomes first order for larger mixing angles.

We also discuss the strong agreement between two-loop perturbation theory and our lattice results for critical thermodynamic quantities when the transition is strongly first order. For the light scalar regime, pertinent to exotic Higgs decays, we update previous one-loop results using two-loop effective field theory and present lattice simulations at specific benchmark parameters. Our findings indicate that the transition shifts to a crossover with small Higgs-singlet portal couplings.

This work enhances our understanding of the electroweak phase transition and its implications in high-energy physics.

45

Phase transitions, baryogenesis and anomalous baryon number violation

Author: Yanda Wu[1]

[1] *Shanghai Jiao Tong University*

Corresponding Author: yanda.wu7@sjtu.edu.cn

Our study presents a comprehensive analysis of baryon number violation during the electroweak phase transition (EWPT) within the framework of an extended scalar electroweak multiplet. We perform a topological classification of scalar multiplet's representation during the EWPT, identifying conditions under which monopole or sphaleron field solutions emerge, contingent upon whether their hypercharge is zero; which indicates that only monopole scalar multiplet can contribute to the dark matter relic density. We also conduct a systematic research of other formal aspects, like the construction of higher dimensional sphaleron matrix, computation of the sphaleron and monopole mass, and the analysis of boundary conditions for the field equation of motions. We then scrutinize the computation of sphaleron energy and monopole mass within the context of a multi-step EWPT, employing the SU(2) septuplet scalar extension to the Standard Model (SM) as a case of study. In the scenario of a single-step EWPT leading to a mixed phase, we find that the additional multiplet's contribution to the sphaleron energy is negligible, primarily due to the prevailing constraint imposed by the parameter. Conversely, in a two-step EWPT scenario, the monopole mass can achieve significantly high values during the initial phase, thereby markedly constraining the monopole density and preserving the baryon asymmetry if the universe undergoes a first-order phase transition. In the two-step case, we delineate the relationship between the monopole mass and the parameters relevant to dark matter phenomenology.

Plenary / **46**

Speech from Shandong University

Plenary / **47**

基金委相关领导致辞

Plenary / **48**

Speech from CPS High Energy Branch

Corresponding Author: zhaozg@ustc.edu.cn

Plenary / **49**

Logistics from LOC

Corresponding Author: haifeng.li@cern.ch

Plenary / **50**

ATLAS report

Corresponding Author: liangzj@ihep.ac.cn

Plenary / **51**

CMS report

Corresponding Author: zhen.hu@cern.ch

Plenary / **52**

Photo and Break

Plenary / **53**

LHCb report

Corresponding Author: yanxi.zhang@cern.ch

Plenary / **54**

ALICE report

Corresponding Author: xiaoming.zhang@ccnu.edu.cn

Plenary / **55**

Discussion

Plenary / **56**

Probing electroweak phase transitions at the LHC and future colliders

Corresponding Author: kpxie@pku.edu.cn

Plenary / **57**

Electro-weak physics at LHCb

Corresponding Author: yinh@mail.ccnu.edu.cn

Plenary / **58**

Precision QCD and Flavor physics

Corresponding Author: scheng@hnu.edu.cn

Plenary / **59**

Rare decays at LHCb

Corresponding Author: yujs@mail.ihep.ac.cn

Plenary / **60**

CP violation at LHCb

Corresponding Author: lipeilian@ucas.ac.cn

Plenary / **61**

Hadron spectroscopy at LHCb

Corresponding Author: liming_zhang@tsinghua.edu.cn

Plenary / **62**

The On-shell Method of Effective Field Theory

Corresponding Author: xiaomlei@mail.sysu.edu.cn

Plenary / **63**

Tau g-2 and Heavy Flavor Highlights from ATLAS/CMS

Corresponding Author: dayong.wang@pku.edu.cn

Plenary / **64**

New Physics search recent Highlights and summary

Corresponding Author: liuyang811@ihep.ac.cn

Plenary / **65**

Multi-boson highlights and electroweak Summary

Corresponding Author: lailinxu@ustc.edu.cn

Plenary / **66**

Physics of Heavy Ion collisions

Corresponding Author: chunjianzhang@fudan.edu.cn

Plenary / **67**

Open heavy-flavour and quarkonia physics with ALICE

Corresponding Author: zjh@ccnu.edu.cn

Plenary / **68**

Study of vector meson spin alignment with ALICE

Corresponding Author: baixiaozhi@ustc.edu.cn

Plenary / **69**

The speed of sound in quark–gluon plasma and ATLAS/CMS HI summary

Corresponding Author: zaochen.ye.2017@gmail.com

Plenary / **70**

Higgs Physics and Quantum entanglement

Corresponding Author: stavrosatic@gmail.com

Plenary / **71**

Di-Higgs recent highlights and Summary

Corresponding Author: yanlin@cern.ch

Plenary / **72**

Rare/BSM higgs recent highlights and Summary

Corresponding Author: wangjin3@ihep.ac.cn

Plenary / **73**

Single Higgs recent highliths and summary

Corresponding Author: kun.liu@cern.ch

Plenary / **74**

ATLAS upgrade

Corresponding Author: zhaomei@ihep.ac.cn

Plenary / **75**

CMS upgrade

Corresponding Author: bany@pku.edu.cn

Plenary / **76**

LHCb upgrade

Corresponding Author: xuhao.yuan@cern.ch

Plenary / **77**

ALICE upgrade

Corresponding Author: zbyin@mail.ccnu.edu.cn

Plenary / **78**

QCD Energy correlator at collider

Corresponding Author: xiaohuiliu@gmail.com

Plenary / **79**

Quantum entanglement in the highest energy at LHC and top physics summary

Corresponding Author: liaohb@ihep.ac.cn

Plenary / **80**

W-mass highlights and precision measurement summary

Corresponding Author: guimaraes@ihep.ac.cn

Plenary / **81**

CEPC status

Corresponding Authors: jwang@ihep.ac.cn, gaoj@ihep.ac.cn

Plenary / **82**

Short summary

Corresponding Author: jialiu@pku.edu.cn

Plenary / **83**

Annoucements

Corresponding Authors: zhanghq@ihep.ac.cn, jialiu@pku.edu.cn

Public lecture / **84**

物质最深处

Corresponding Author: yuanning.gao@pku.edu.cn

Parallel 4 / 85

Review of CMS HCAL reconstruction performance

Author: Hui（徽）Wang（王）[1]

[1] *NNU*

Corresponding Author: h.wang@cern.ch

Parallel 4 / 86

Run3 ECAL performance

Author: Jie Zhang[1]

[1] *student*

Corresponding Author: zhangjie98@ihep.ac.cn

Parallel 4 / 87

Measurements of lateral energy leakage of electrons and photons in the second layer of EMC using early Run3 pp collision data with the ATLAS detector

Author: Shaoguang Wu[1]

[1] 高能所

Corresponding Author: wusg@ihep.ac.cn

Parallel 4 / 88

Upgrade of the ALICE inner-tracker: ITS3 for LHC run 4

Author: Chunzheng Wang[1]

[1] *Fudan University*

Corresponding Author: wangcz22@m.fudan.edu.cn

Parallel 4 / 89

The design, production and QC test of GEM Electronics board for CMS ME0 project

Author: 哲李 [1]

[1] 北京大学物理学院技术物理所

Corresponding Author: 2201110119@pku.edu.cn

Parallel 3 / 90

Probing heavy meson lightcone distribution amplitudes with heavy quark spin symmetry

Author: Jun ZENG[1]

[1] *Shanghai Jiao Tong University*

Corresponding Author: zengj@sjtu.edu.cn

HF overview

Parallel 3 / 91

Overview on ATLAS B Physics Results Highlights

Author: Xin Chen[1]

[1] *Tsinghua University*

Corresponding Author: xin.chen@cern.ch

Parallel 1: Upgrade / 92

Status on R&D of FoCal Pixel Layers

Corresponding Author: junliu@mail.ccnu.edu.cn

Parallel 1: Upgrade / 93

Study on the Performance of FoCal Pixel Layers;

Corresponding Author: tangqian@mails.ccnu.edu.cn

Parallel 1: Upgrade / 94

Status of HGCal module assembly at IHEP

Corresponding Author: wangfeng@ihep.ac.cn

Parallel 1: Upgrade / 95

HGCal module beam test

Corresponding Author: houbr@ihep.ac.cn

Parallel 1: Upgrade / 96

Fast LYSO and GAGG Scintillators for CMS MTD and LHCb Upgrade

Corresponding Author: dingyc@cetccq.com.cn

Parallel 1: Upgrade / 97

Testbeam results of LHCb PicoCal R&D

Corresponding Author: a878747334@163.com

Parallel 1: Upgrade / 98

Overview of High Granularity Timing Detector Activities in China

Corresponding Author: liangzj@ihep.ac.cn

Parallel 1: Upgrade / 99

Researches of radiation-resistant LGAD sensors for ATLAS High Granularity Timing Detector

Authors: Mei Zhao[1]; Weiyi SunN[one]

[1] 高能所, *IHEP*

Corresponding Author: zhaomei@ihep.ac.cn

Parallel 1: Upgrade / 100

Characterization of USTC-IME LGAD pre-production sensors for the HGTD

Author: Kuo Ma[1]

[1] *University of Science and Technology of China*

Corresponding Author: kma9820@mail.ustc.edu.cn

Parallel 1: Upgrade / 101

MTD ETL sensor test

Corresponding Author: yuchengjun@ihep.ac.cn

Parallel 1: Upgrade / 102

MTD BTL sensor R&D and assembly

Author: jin wang[1]

[1] *school of physics Peking Uniersity*

Corresponding Author: 1800011341@pku.edu.cn

Parallel 1: Upgrade / 103

MTD BTL thermal test setup

Author: 乐言李 [1]

[1] *school of physics Peking Uniersity*

Corresponding Author: 731294114@qq.com

Parallel 1: Upgrade / 104

Development of data acquisition system for the HGTD

Parallel 1: Upgrade / 105

The Prototype of the Peripheral Electronics Board for ATLAS High Granularity Timing Detector

Author: Jie ZHANG[1]

[1] *Institute of High Energy Physics*

Corresponding Author: zhj@ihep.ac.cn

Parallel 1: Upgrade / 106

Development of HGTD Module assembly and loading at IHEP

Author: Xuan YANG[1]

[1] 高能所

Corresponding Author: yangxuan@ihep.ac.cn

Parallel 1: Upgrade / 107

Research on HGTD module thermal cycle

Corresponding Author: liuyulong@ihep.ac.cn

Parallel 1: Upgrade / 108

ATLAS High Granularity Timing Detector: Test beam performance of LGAD sensors

Author: KHURAM TARIQ[1]

[1] 高能所

Corresponding Author: ktariq@ihep.ac.cn

Parallel 1: Upgrade / 109

Construction and Upgrade of ALTIROC Chip Testing System

Parallel 1: Upgrade / 110

Doping optimization of the crysal materials based on ML

Author: Min Wei[1]

[1] *WHU*

Parallel 1: Upgrade / 111

Performance studies on benchmarking physics channels for LHCb ECAL Upgrade II

Corresponding Authors: bryant210824@foxmail.com, luo-yh17@mails.tsinghua.edu.cn

Parallel 1: Upgrade / 112

Perspective on B0 -> π+π-π0 performance after LHCb Ecal Upgrade II

Corresponding Author: 2019206490005@whu.edu.cn

Parallel 1: Upgrade / 113

CuW baseplate R&D and production

Corresponding Authors: hanwang@ihep.ac.cn, wanghan98@ihep.ac.cn, wanghan@ihep.ac.cn

Parallel 1: Upgrade / 114

Studies on light guide for LHCb ECAL Upgrade II

Corresponding Author: weisong.duan@cern.ch

Parallel 1: Upgrade / 115

HGCal module test at IHEP

Corresponding Authors: cuizp@ihep.ac.cn, zhipeng.cui@cern.ch

Parallel 1: Upgrade / 116

Status on R&D of Monolithic Active Pixel Sensors for ALICE Inner Tracking System

Author: qiaomu tongN[one]

Corresponding Author: qiaomu.tong@cern.ch

Parallel 1: Upgrade / 117

ATLAS ITk Strip Sensor Irradiation at CSNS

Corresponding Author: huangyj295@mail2.sysu.edu.cn

Parallel 1: Upgrade / 118

Development of ATLAS ITk strip module

Author: Chengwei Wang[1]

[1] *IHEP*

Corresponding Author: wangchw@ihep.ac.cn

Parallel 1: Upgrade / 119

Radiation effects of ASICs for ATLAS ITk strip upgrade

Author: Weiguo Lu[1]

[1] *IHEP*

Corresponding Author: luwg@ihep.ac.cn

Parallel 1: Upgrade / 120

UT commissioning and performance

Author: Mingjie Feng[1]

[1] *IHEP*

Corresponding Author: fengmj@ihep.ac.cn

Parallel 1: Upgrade / 121

Stripping and sprucing: offline analysis at LHCb

Author: Shuqi Sheng[1]

[1] *Institute of High Energy Physics, Chinese Academy of Sciences (IHEP, CAS)*

Corresponding Author: shengshuqi@ihep.ac.cn

Parallel 1: Upgrade / 122

CMOS R&D for LHCb UT in Upgrade II

Corresponding Author: xiangzy@ihep.ac.cn

Parallel 1: Upgrade / 123

Simulation study for LHCb UT in Upgrade II

Corresponding Author: 2327256131@qq.com

Parallel 1: Upgrade / 124

The thin RPC gas gap development for the ATLAS Phase-II upgrade

Corresponding Author: ddszhg@126.com

Parallel 1: Upgrade / 125

The RPC assembly for the ATLAS Phase-II upgrade

Corresponding Author: lagarde@ustc.edu.cn

Parallel 1: Upgrade / 126

GEM Chamber assembly and test for CMS ME0 upgrade at Peking University

Parallel 4 / 127

LHC Computing in China

Author: 法制齐 [1]

[1] 高能所

Corresponding Author: qfz@ihep.ac.cn

Parallel 4 / 128

IHEP Site Report

Author: JIngyan Shi[1]

[1] *IHEP*

Corresponding Author: shijy@ihep.ac.cn

Parallel 4 / 129

LZU Site Report

Author: 培荣李 [1]

[1] *Lanzhou University*

Parallel 4 / 130

USTC Site Report

Corresponding Author: silentassassin@mail.ustc.edu.cn

Parallel 4 / 131

SDU Site Report

Author: Teng Li[1]

[1] *Shandong University*

Corresponding Author: liteng_shiyan@163.com

Parallel 4 / 132

CUHK Site Report （CUHK）

Author: TBDN[one]

Parallel 4 / 133

CUHK Site Report （CUHK）

Author: TBDN[one]

Parallel 4 / 134

Updates of CERNET and FITI

Author: Zhonghui LiN[one]

Parallel 4 / 135

ALICE Computing Introduction

Corresponding Author: hanx@ihep.ac.cn

Parallel 4 / 136

ATLAS Computing Introduction

Parallel 4 / 137

CMS Computing Introduction

Corresponding Author: chenms@ihep.ac.cn

Parallel 4 / 138

LHCb Computing Introduction

Author: Shanzhen Chen[1]

[1] *IHEP, CAS*

Corresponding Author: shanzhen.chen@ihep.ac.cn

Parallel 4 / 139

Review of HCAL reconstruction performance

Author: Hui WangN[one]

Parallel 4 / 140

Run3 ECAL performance

Author: Jie ZhangN[one]

Parallel 4 / 141

Measurements of lateral energy leakage of electrons and photons in the second layer of EMC using early Run3 pp collision data with the ATLAS detector

Author: Shaoguang WuN[one]

Parallel 4 / 142

Upgrade of the ALICE inner-tracker: ITS3 for LHC run 4

Author: Chunzheng WangN[one]

Parallel 4 / 143

The design, production and QC test of GEM Electronics board for CMS ME0 project

Author: Zhe LiN[one]

Parallel 4 / 144

Study the structure of 𝑋(3872) from its lineshape

Author: hongge xu[1]

[1] *China University of Geosciences*

Corresponding Author: 15171452928@163.com

Parallel 2 / 145

Improved constraint on Higgs boson self-couplings with quartic and cubic power dependence in the cross section

Author: Jian Wang[1]

[1] *Shandong University*

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

Parallel 4 / 146

Determining heavy meson light-cone distribution amplitudes from lattice QCD

Author: Xueying HanN[one]

Corresponding Author: hanxy@ihep.ac.cn

Parallel 2 / 147

Measurements of Higgs boson production cross sections in the four-lepton final state at 13.6 TeV in CMS

Author: Yuji LiN[one]

Corresponding Author: yjli@ihep.ac.cn

Parallel 4 / 148

LHC Physics Tools for Precision Gravitational Wave Physics

Author: Zhengwen Liu[1]

[1] *Southeast University*

Corresponding Author: zhengwen.liu@seu.edu.cn

Parallel 4 / 149

Exotic states production in nuclear collisions at the LHC energy

Author: Zhilei SHE[1]

[1] *Wuhan Textile University*

Corresponding Author: shezhilei@cug.edu.cn

Parallel 4 / 150

CPV in FCNU decays

Author: 可陈李 N[one]

Corresponding Author: kcli@mails.ccnu.edu.cn

Parallel 4 / 151

Parity Violation on Quantum Entanglement and Bell Nonlocality

Author: Yong Du[1]

[1] *TD Lee Institute*

Corresponding Author: yongdu5@sjtu.edu.cn

Parallel 2 / 152

Simplified template cross sections for Higgs boson decays in H to ZZ* to 4l channel

Author: 涵李 [1]

[1] 山东大学前沿交叉科学青岛研究院

Corresponding Author: lihan2018@mail.sdu.edu.cn

Parallel 4 / 153

The bubble wall velocity: from the local Boltzmann equations to the non-local Kadanoff-Baym equations

Author: Jiang Zhu[1]

[1] *Tsung-Dao Lee Institute, Shanghai jiao tong Univercity*

Corresponding Author: jackpotzhujiang@gmail.com

Parallel 4 / 154

Complete analytic and expansion formulae for the muon magnetic dipole moment

Author: 世平和 [1]

[1] *Taiyuan University of Technology*

Corresponding Author: heshiping1990@163.com

Parallel 2 / 155

Measurements of Higgs boson mass and width at CMS

Author: Chenguang 张辰光 [1]

[1] *IHEP,Beijing*

Corresponding Author: zhangcg@ihep.ac.cn

Parallel 4 / 156

Search for nearly-degenerate higgsinos using forward detectors at the LHC

Author: 航周 [1]

[1] 常州大学

Corresponding Author: zhouhang@cczu.edu.cn

Parallel 4 / 157

Phase transitions, baryogenesis and anomalous baryon number violation

Author: Yanda Wu[1]

[1] *Shanghai Jiao Tong University*

Corresponding Author: yanda.wu7@sjtu.edu.cn

Parallel 2 / 158

Measurement of the Higgs boson cross section and Width with the ATLAS detector

Corresponding Author: ehsan.musajan@mail.ustc.edu.cn

Parallel 4 / 159

Nonperturbative study of the electroweak phase transition in the real scalar singlet extended Standard Model

Author: Guotao Xia[1]

[1] *TDLI*

Corresponding Author: xiagt-summer@sjtu.edu.cn

Parallel 4 / 160

Probing Type-I 2HDM light Higgs in the top-pair-associated diphoton channel

Author: 亚博董 [1]

[1] 河南大学

Corresponding Author: 3602487781@qq.com

Parallel 4 / 161

Progress of CEPC ECAL R&D

Author: Yong Liu[1]

[1] *Institute of High Energy Physics*

Corresponding Author: liuyong@ihep.ac.cn

Parallel 2 / 162

Measurements of Higgs boson production cross sections in the di-photon final state at 13.6 TeV in CMS

Corresponding Author: 1900012626@pku.edu.cn

Parallel 4 / 163

The Progress of the CEPC GS HCAL

Corresponding Author: hengne.li@m.scnu.edu.cn

Parallel 2 / 164

Differential cross-section measurement of the Higgs boson decaying into two taus at the ATLAS experiment

Author: Antonio De Maria[1]

[1] *Nanjing University*

Corresponding Author: antonio.de.maria@cern.ch

Parallel 4 / 165

Progress of CEPC VTX detector

Author: 梁志均 LIANG ZhijunN[one]

Corresponding Author: liangzj@ihep.ac.cn

Parallel 4 / 166

Jet origin identification at electron positron Higgs factory

Author: 永峰朱 N[one]

Corresponding Author: zhuyf@ihep.ac.cn

Parallel 4 / 167

Beam Polarization at CEPC

Author: Zhe DUAN[1]

[1] 高能所

Corresponding Author: duanz@ihep.ac.cn

Parallel 3 / 168

Heavy quarkonium probes in small and large systems

Author: 有恩康 [1]

[1] 清华大学

Corresponding Author: yokang@cern.ch

Parallel 2 / 169

Electroweak Corrections to Double Higgs Production at the LHC

Author: 环宇毕 [1]

[1] 北京大学

Corresponding Author: bihy@pku.edu.cn

Parallel 4 / 170

CEPC Acc. Design & Green Accelerator

Author: Dou WANG[1]

[1] *IHEP*

Corresponding Author: wangd93@ihep.ac.cn

Parallel 2 / 171

Search for non-resonant Higgs boson pair production in final state with photons and mutil-lepton in pp colisions at √s = 13 TeV with the ATLAS detector

Author: Qiyu ShaN[one]

Corresponding Author: shaqiyu@ihep.ac.cn

Parallel 3 / 172

Experimental Road to a Charming Family of Tetraquarks. . . and Beyond

Author: Feng ZhuN[one]

Parallel 2 / 173

Searches for Di-Higgs production in the ⊠⊠ll final state at the LHC

Author: Fábio Alves[1]

[1] *Nanjing University*

Corresponding Author: fabio.lucio@cern.ch

Parallel 2 / 174

Search for pair production of boosted Higgs bosons via vector-boson fusion in the bbbb final state using pp collisions at √s = 13 TeV with the ATLAS detector

Author: 震王 [1]

[1] 上海交通大学李政道研究所 & 中国科学技术大学

Corresponding Authors: wangzhen@stu.zzu.edu.cn, wangz1996@sjtu.edu.cn

Parallel 2 / 175

Search for double Higgs resonances with gammagamma in the final state at CMS

Author: 镇轩张 [1]

[1] 高能所

Corresponding Author: zhangzhx@ihep.ac.cn

Parallel 3 / 176

New results on pentaquarks

Parallel 2 / 177

Towards a more precise W mass measurement in ATLAS

Corresponding Author: jiaxuewei@ihep.ac.cn

Parallel 3 / 178

Heavy flavor production in proton-lead collisions

Corresponding Author: jianqiao.wang@cern.ch

Parallel 3 / 179

Measurement of charmonium production at midrapidity in pp collisions at 13.6 TeV with ALICE

Author: Yuan Zhang[1]

[1] *USTC*

Corresponding Author: zhang_yuan@mail.ustc.edu.cn

Parallel 2 / 180

Direct charged and neutral Higgs searches with LHC

Author: 伟苏 [1]

[1] *Sun Yat-Sen University*

Corresponding Author: suwei26@mail.sysu.edu.cn

Parallel 2 / 181

Search for Higgs boson decays into new light bosons in the four-tau final state using pp collisions at $\sqrt{s}$ = 13 TeV with the ATLAS detector

Author: Hao Zeng[1]

[1] *IHEP*

Corresponding Author: zenghao@ihep.ac.cn

Parallel 2 / 182

Measurements of Higgs boson properties and search for new resonances in gamma gamma final state at CMS

Author: Junquan (军全) TAO (陶)[1]

[1] *IHEP/CAS (中科院高能所)*

Corresponding Author: taojq@mail.ihep.ac.cn

Parallel 3 / 183

Prospect for time dependent CPV in b->sll decays

Author: 可陈李 N[one]

Corresponding Author: kcli@mails.ccnu.edu.cn

Parallel 2 / 184

Measurement of the associated production of a Higgs boson and a top-quark pair in multilepton final states in pp collisions at √s = 13 TeV with the ATLAS detector

Author: 家琳李 [1]

[1] 上海交通大学物理与天文学院

Corresponding Author: lijialin@sjtu.edu.cn

Parallel 3 / 185

CP asymmetries corresponding to the imaginary parts of the interference terms in cascade decays of heavy hadrons

Author: Zhen-Hua Zhang[1]

[1] *University of South China*

Corresponding Author: zhangzh@mail.bnu.edu.cn

CPV and amplitude analysis

Parallel 2 / 186

Measurements of WH and ZH Higgs production with decays into bottom quarks and direct constraints on the charm Yukawa coupling with 13 TeV collisions in the ATLAS detector

Author: 昱昊王 [1]

[1] *Nanjing University*

Corresponding Author: yuhao.wang@smail.nju.edu.cn

Parallel 2 / 187

Double Higgs production combination at CMS

Author: Chen（辰）Zhou（周）[1]

[1] *Peking University*（北京大学）

Corresponding Author: chen.zhou@cern.ch

Parallel 2 / 188

Combination of searches for Higgs boson decays into a photon and a massless dark photon using pp collisions at √s = 13 TeV with the ATLAS detector

Author: Xinhui Huang[1]

[1] *IHEP*

Corresponding Author: huangxinhui@ihep.ac.cn

Parallel 3 / 189

CPV in charmless Lambda_b0 decay

Author: Xinchen Dai[1]

[1] 北京大学

Corresponding Author: xdai@cern.ch

Parallel 2 / 190

Studies of new Higgs boson interactions through nonresonant □□ production in the □ ⁻□□□ final state in □ □ collisions at √□ = 13 TeV with the ATLAS detector

Author: 力钢夏 [1]

[1] *Nanjing University*

Corresponding Author: ligang.xia@nju.edu.cn

Parallel 3 / 191

Evidence of CPV in B+ -> J/psi pi+ decay

Author: 曼殊李 [1]

[1] 华中师范大学

Corresponding Author: msli@mails.ccnu.edu.cn

Parallel 2 / 192

Lam-Tung relation breaking in Z boson production as a probe of SMEFT effects

Author: Bin Yan[1]

[1] *IHEP*

Corresponding Author: yanbin@ihep.ac.cn

Parallel 3 / 193

Amplitude analysis of B- ->D-D0KS decay

Author: Shuang ZhengN[one]

Parallel 3 / 194

Amplitude analysis of Ds(2460)+ -> Ds+ pi+ pi- decay

Author: Linxuan Zhu[1]

[1] 中国科学院大学

Corresponding Author: zhulinxuan16@mails.ucas.ac.cn

Parallel 2 / 195

Observation of gamma gamma-> tau tau in pp collisions and constain tau g-2 at CMS

Author: zongsheng He[1]

[1] *CCNU*

Parallel 3 / 196

Amplitude analysis of B+ -> D*+ D- K+ decay

Author: 蒋艺 [1]

[1] *University of Chinese Academy of Sciences*

Corresponding Author: jiangyi15@mails.ucas.ac.cn

Parallel 2 / 197

Energy correlator measurement at CMS

Author: 桢林 [1]

[1] *Zhejiang University*

Corresponding Author: zhen.lin@cern.ch

Parallel 2 / 198

MSSM Hbb UL2016

Corresponding Author: nazima@ihep.ac.cn

Parallel 3 / 199

Upsilon cross section measurement at 13.6 TeV at CMS

Author: Yiyang Zhao[1]

[1] *Tsinghua University*

Corresponding Author: yiyang.zhao@cern.ch

Parallel 3 / 200

Ωc production in pp collisions with ALICE

Author: Yunfan LiuN[one]

Parallel 2 / 201

Observation and differential measurements of electroweak Wγjj production in pp collisions at √s = 13 TeV with the ATLAS detector

Author: 婧陈 [1]

[1] 上海交通大学物理与天文学院 & 李政道研究所

Corresponding Author: ivychen8@sjtu.edu.cn

Parallel 2 / 202

New experimental observables in the future PDF global analysis at the LHC

Author: Zihan Zhao[1]

[1] *IHEP & Henan Normal University*

Corresponding Author: zhaozh@ihep.ac.cn

Parallel 3 / 203

Shedding Light on Hadronization by Quarkonium Energy Correlator

Corresponding Author: chenanping@pku.edu.cn

Parallel 2 / 204

Measurement of the diboson polarization and RAZ in WZ production at ATLAS

Corresponding Author: ustc_yu@mail.ustc.edu.cn

Parallel 2 / 205

The Forgotten Supersymmetry Signals: Long-Lived SUSY particles inside LHC

Author: 文星张 [1]

[1] *Hebei University*

Corresponding Author: zhangwenxing15@mails.ucas.ac.cn

Parallel 3 / 206

Observation of double charm production in pp collisions with ALICE

Author: Ahsan Mehmood Khan[1]

[1] *University of Science and Technology of China*

Corresponding Author: ahsan.mehmood.khan@cern.ch

Parallel 2 / 207

Search for a new Z′ gauge boson in pp collisions at 13 TeV with the ATLAS detector

Author: 昊许 [1]

[1] *University of Science and Technology of China*

Corresponding Author: dove681@mail.ustc.edu.cn

Parallel 3 / 208

Double Jpsi cross section measurement at 13 TeV at CMS

Authors: 锦枫刘 [1]; 锦枫刘 [1]

[1] 清华大学

Corresponding Authors: liujf19@mails.tsinghua.edu.cn, jinfeng.liu@cern.ch

Parallel 3 / 209

Study of the Xi_cc++ -> Xi_c0 pi+ pi+ decay

Author: 星昱童 [1]

[1] *Peking University*

Corresponding Author: 2001110112@stu.pku.edu.cn

Parallel 3 / 210

First determination of Xi_c(3055)+,0 spin-parity

Corresponding Author: wanguanyue@stu.pku.edu.cn

Parallel 3 / 211

Search for Bs0 -> mu+ mu- gamma decay

Author: 翔宇吴 [1]

[1] 武汉大学

Corresponding Author: xiangyucn@outlook.com

Parallel 2 / 212

Search for electroweak SUSY production in 2-tau final state and reinterpretation in models with variable RPV coupling

Authors: UNKNOWN 梁诗怡 N[one]; UNKNOWN 袁家荣 N[one]

Corresponding Authors: liangshy@ihep.ac.cn, yuanjr@ihep.ac.cn

Parallel 2 / 213

Strong and Elecctroweak SUSY searches in SS/3L final states in ATLAS

Author: UNKNOWN 梁诗怡 N[one]

Corresponding Author: liangshy@ihep.ac.cn

Parallel 2 / 214

Search for long-lived particles decayed in calorimeter with the ATLAS detector

Author: Tianao Wang[1]

[1] *USTC*

Corresponding Author: tianaow@mail.ustc.edu.cn

Parallel 2 / 215

Recent ATLAS results of Dark Matter combination and Dark Higgs search

Author: 齐斌刘 [1]

[1] 上海交通大学李政道研究所 & 物理与天文学院

Corresponding Author: qibin.liu@cern.ch

Parallel 3 / 216

Branching fraction and CPV measurements for Lambda_b/Xi_b -> Lambda h h’ decays

Corresponding Author: 1900012418@pku.edu.cn

Parallel 2 / 217

The SM expected branching ratio for $h\to\square\square$ and an excess for $h\to\square\square$

Author: 佳韦刘 [1]

[1] *Tsung-Dao Lee Institute,Shanghai Jiao Tong University*

Corresponding Author: ron1a2l3d4@gmail.com

Parallel 2 / 218

Search for Fractionally Charged Particles at 13 TeV with the ATLAS Detector

Author: Yifan Yang[1]

[1] *University of Science and Technology of China*

Corresponding Author: yyf3vg@mail.ustc.edu.cn

Parallel 2 / 219

Probing Neutral Triple Gauge Couplings via $Z\gamma(\ell^+\ell^-\gamma)$ Production at LHC-ATLAS and future Colliders

Author: 丹宁刘 [1]

[1] 上海交通大学李政道研究所 & 物理与天文学院

Corresponding Author: danningliu@sjtu.edu.cn

Parallel 3 / 220

Investigation of charm-quark hadronization into baryons and its collision systems dependence with ALICE

Author: t fang[1]

[1] *Central China Normal University*

Corresponding Author: tfang@cern.ch

Parallel 2 / 221

Search for heavy neutral Higgs bosons decaying into a top quark pair with the ATLAS detector

Authors: 以周蔡 [1]; 以周蔡 [2]

[1] 南京大学

[2] *NJU*

Corresponding Authors: cyz@smail.nju.edu.cn, yizhou.cai@cern.ch

Parallel 2 / 222

Search for □□-□/□ → □□-□□- production in proton–proton collisions at √□ = 13 TeV with the ATLAS detector

Author: 厉宁毛 [1]

[1] 上海交通大学物理与天文学院

Corresponding Author: mln517@sjtu.edu.cn

Parallel 3 / 223

The Effects of Multiple-Parton Interactions on the Production of Charged Particles and Pentaquarks

Author: 浩杨 [1]

[1] *Xi\'an Jiaotong-Liverpool University*

Corresponding Author: hao.yang18@student.xjtlu.edu.cn

Parallel 3 / 224

UPC studies in Pb+Pb collisions with the ATLAS

Author: Xinyan Liu[1]

[1] *Shandong University*

Corresponding Author: xinyanliu@mail.sdu.edu.cn

Parallel 2 / 225

Combination of searches for heavy spin-1 resonances with the ATLAS detector

Author: 睿袁 [1]

[1] 上海交通大学李政道研究所 & 物理与天文学院

Corresponding Author: yuanrui@sjtu.edu.cn

Parallel 3 / 226

Particle production as a function of event shape classifiers in small collision systems with ALICE

Author: Feng Fan[1]

[1] *Central China Normal University*

Corresponding Author: f.feng@mails.ccnu.edu.cn

Parallel 3 / 227

Coherent J/ψ photoproduction at midrapidity in Pb–Pb collisions at ALICE

Author: 圳君熊 [1]

[1] 中国科学技术大学

Corresponding Author: zhenjun.xiong@cern.ch

Parallel 3 / 228

Coherent charmonium production in ultra-peripheral lead-lead collisions

Author: Xiaolin Wang[1]

[1] *SCNU*

Corresponding Authors: xiaolin.wang@cern.ch, hengne.li@m.scnu.edu.cn

Parallel 3 / 229

Correlation of strangeness production with charged hadrons in proton-proton collisions with ALICE

Author: 凯崔 [1]

[1] *Central China Normal University*

Corresponding Author: kaicui@mails.ccnu.edu.cn

Parallel 3 / 230

Measurement of Lambda_b0, Lambda_c+ and Lambda decay parameters

Author: 禹昊王 [1]

[1] *Peiking University*

Corresponding Author: wangyuhao@mails.ccnu.edu.cn

Parallel 3 / 231

\psi(2S) production in Pb-Pb collisions at \sqrt{s_NN}=5.02TeV with ALICE

Author: 怡平王 N[one]

Parallel 3 / 232

QCD LCDAs of Heavy Mesons from boosted HQET

Author: Yanbing Wei[1]

[1] *BJUT*

Corresponding Author: yanbing.wei@bjut.edu.cn

Parallel 3 / 233

A review for hypernuclei and exotica in ALICE experiment

Author: zhengqing wang[1]

[1] *fudan university*

Corresponding Author: 24110190070@m.fudan.edu.cn

Parallel 3 / 234

Recent results on quarkonia elliptic flow with ALICE

Author: liuyao zhang[1]

[1] *Fudan university*

Corresponding Author: zhangliuyao@fudan.edu.cn

Parallel 4 / 235

Study of EEC discrimination power on quark and gluon quenching effects based on LHC heavy-ion detectors

Author: Xufei XueN[one]

Parallel 3 / 236

Detecting fluctuating gluonic structure via energy-dependent incoherent photoproduction in PbPb at 5.02 TeV with the CMS experiment

Author: Zaochen Ye[1]

[1] *Rice University*

Corresponding Author: zaochen.ye.2017@gmail.com

Parallel 4 / 237

CMS DQM-DC operations and performance during Run3 data-taking

Author: Javaid Tahir[1]

[1] 高能所

Corresponding Author: jtahir@ihep.ac.cn

Parallel 4 / 238

IHEP ROC Report (CMS) Talk

Author: Ye Chen[1]

[1] *IHEP*

Corresponding Author: chenye@ihep.ac.cn

Parallel 4 / 239

Quantum-Annealing-Inspired algorithms for future colliders

Author: Hideki (英希) Okawa (大川)[1]

[1] *IHEP*

Corresponding Author: okawa@ihep.ac.cn

Parallel 3 / 240

Elliptic flow fluctuations relative to the spectator plane in Pb–Pb collisions.

Author: Jie WanN[one]

Parallel 3 / 241

Exploring nuclear structure with multiparticle azimuthal correlations at the LHC

Author: Zhiyong Lu[1]

[1] *CIAE(中国原子能科学研究院)*

Corresponding Author: liscklu@hotmail.com

Parallel 3 / 242

Studies of jet quenching effects through hadron-jet correlations at LHC

Author: 永珍侯 [1]

[1] 华中师范大学

Corresponding Author: yzhhou@mails.ccnu.edu.cn

Parallel 4 / 243

Development Status of the CCT Superconducting Magnets for HL-LHC

Author: Yingzhe WangN[one]

Parallel 3 / 244

Understanding the multiplicity dependence of the non-prompt charm hadron production measured at ALICE

Author: 佳林何 N[one]

Parallel 3 / 245

Jet Tagging with More-Interaction Particle Transformer

Author: Kun Wang[1]

[1] *University of Shanghai for Science and Technology*

Corresponding Author: kwang@usst.edu.cn

Parallel 3 / 246

Measurement of jet production in small systems with ALICE

Author: Haidar Mas\'ud Alfanda[1]

[1] *Central China Normal University*

Corresponding Author: hmasud@mails.ccnu.edu.cn

Parallel 3 / 247

Measurement of jet suppression down to low pT in ALICE

Corresponding Author: fengwenhui@mails.ccnu.edu.cn

Parallel 3 / 248

Z production in proton-lead collisions at 8.16 TeV

Author: 天齐李 [1]

[1] 华南师范大学

Corresponding Authors: 2021010328@m.scnu.edu.cn, tianqi.li@cern.ch, tianqi@cern.ch

Parallel 3 / 249

Study of leading transverse momentum fraction of Lambda and KS0 in pp collisions at 13 TeV

Author: Qiuyue Zhang[1]

[1] *Central China Normal University*

Corresponding Author: zhangqiuyue@mails.ccnu.edu.cn

Parallel 3 / 250

p–d femtoscopy and pp source size measurement in Pb–Pb collisions with ALICE at the LHC

Author: 东方王 [1]

[1] *Fudan university*

Corresponding Author: dfwang20@fudan.edu.cn

Parallel 4 / 251

Performance Test of the CCT Superconducting Magnets for HL-LHC

Author: 贤金欧 N[one]

Poster / 252

Status on R&D of FoCal Readout Electronics

Corresponding Author: shoulonglintju@163.com

Poster / 253

Status on R&D of Monolithic Active Pixel Sensors for ALICE Inner Tracking System

Author: qiaomu tongN[one]

Corresponding Author: qiaomu.tong@cern.ch

Poster / 254

Jpsi + Psi(2S) cross section measurement at 13 TeV at CMS

Author: 乐凯姚 [1]

[1] 清华大学

Corresponding Author: yaolk20@mails.tsinghua.edu.cn

Poster / 255

Longevity studies for CSC gas mixtures with reduced fraction of CF4

Author: Shaowei SongN[one]

Poster / 256

Search for a heavy resonance produced in association with and decaying to a tt pair in the single lepton final state in proton-proton collisions at √s = 13 TeV with the CMS detector

Author: 霄楠侯 [1]

[1] 高能所

Corresponding Author: houxiaonan@ihep.ac.cn

Poster / 257

Searches for Higgs boson production through decays of heavy resonances at CMS

Author: 储王 [1]

[1] *IHEP*

Corresponding Author: wangchu@ihep.ac.cn

Poster / 258

Electron and photon reconstruction and identification performance at CMS in 2022 and 2023

Author: Shaowei SongN[one]

Poster / 259

Tooling with modules for ATLAS ITk strip upgrade

Author: 郭蕾 N[one]

Corresponding Author: guolei@ihep.ac.cn

Poster / 260

Combination of searches for Higgs boson decays into a photon and a massless dark photon using pp collisions at √s = 13 TeV with the ATLAS detector

Author: Ngoc Khanh Vu[1]

[1] *TDLI, Shanghai Jiao Tong University*

Corresponding Author: nkvu@sjtu.edu.cn

Poster / **261**

Recent Progress of DarkSHINE R&D

Corresponding Author: suntong@ihep.ac.cn

Poster / **262**

DarkSHINE Simulation Software Framework

Author: Xuliang Zhu[1]

[1] *Shanghai Jiao Tong University*

Corresponding Author: xuliangz@sjtu.edu.cn

Poster / **263**

DarkSHINE Hadronic Calorimeter R&D

Author: Chunxiang ZhuN[one]

Poster / **264**

DarkSHINE Electromagnetic Calorimeter R&D

Author: Zhiyu Zhao[1]

[1] *TDLI/SJTU*

Corresponding Author: zhaozy@ihep.ac.cn

Poster / **265**

RPC operation in the ATLAS experiment

Author: Jiaxuan LiN[one]

Poster / **266**

A multi-channel Manchester decoder based on FPGA for ATLAS RPC

Author: 家璇李 [1]

[1] 中国科学技术大学

Corresponding Author: jiaxuanli@mail.ustc.edu.cn

Parallel 4 / 267

CSTCLOUD-EGI and CENI Site Report

Corresponding Author: qfz@ihep.ac.cn

Poster / 268

ATLAS High Granularity Timing Detector: Test beam performance of LGAD sensors

Corresponding Author: ktariq@ihep.ac.cn

Parallel 2 / 269

Search for heavy right-handed Majorana neutrinos in the decay of top quarks produced in proton–proton collisions at √⊠ = 13 TeV with the ATLAS detector

Corresponding Author: 454721660@qq.com

Parallel 3 / 270

\psi(2S) production in Pb-Pb collisions at \sqrt{s_NN}=5.02TeV with ALICE

Corresponding Author: ypwangg@mail.ustc.edu.cn

Parallel 3 / 271

\psi(2S) production in Pb-Pb collisions at \sqrt{s_NN}=5.02TeV with ALICE

Corresponding Author: ypwangg@mail.ustc.edu.cn

Parallel 4 / 272

Discussion: WLCG China Federation

Corresponding Author: qfz@ihep.ac.cn