

# Chinese Physics C

Volume 49 Number 5 May 2025

## CONTENTS

### PARTICLES AND FIELDS

#### 053001 Measurements of decay branching fractions of the Higgs boson to hadronic final states at the CEPC

Xiaotian Ma, Zuofei Wu, Jinfei Wu, Yanping Huang, Gang Li, Manqi Ruan, Fábio L. Alves, Shan Jin, Ligang Shao

#### 053002 Data taking strategy for $\psi(3770)$ and $\Upsilon(4S)$ branching fraction measurements at $e^+e^-$ colliders

Jiaxin Li, Xiantao Hou, Junli Ma, Changzheng Yuan, Xiaolong Wang

#### 053003 Neutrino observables in gauged $U(1)_{L_\alpha - L_\beta}$ models with two Higgs doublet and one singlet scalars

Yuanchao Lou, Takaaki Nomura

#### 053004 New constraints on coherent elastic neutrino–nucleus scattering by the vGeN experiment

V. Belov, A. Bystryakov, M. Danilov, S. Evseev, M. Fomina, G. Ignatov, S. Kazartsev, J. Khushvaktov, T. Khussainov, A. Konovalov, A. Kuznetsov, A. Lubashevskiy, D. Medvedev, D. Ponomarev, D. Sautner, K. Shakhov, E. Shevchik, M. Shirchenko, S. Rozov, I. Rozova, S. Vasilyev, E. Yakushev, I. Zhitnikov, D. Zinatulina, (vGeN Collaboration)

#### 053101 $R^2$ corrections to holographic heavy quarkonium dissociation

Zhou-Run Zhu, Manman Sun, Rui Zhou, Jinzhong Han

#### 053102 One-loop analytical expressions for $gg/\gamma\gamma \rightarrow \phi_i\phi_j$ in Higgs extensions of the standard model and their applications

Khiem Hong Phan, Dzung Tri Tran, Thanh Huy Nguyen

#### 053103 Production of doubly heavy baryon at the Muon-Ion collider

Xue-Yun Zhao, Lei Guo, Xu-Chang Zheng, Huan-Yu Bi, Xing-Gang Wu, Qi-Wei Ke

#### 053104 An analysis of the longitudinal structure function at next-to-leading order approximation at small- $x$

G. R. Boroun, Yanbing Cai

#### 053105 Dark photon dark matter in quantum electromagnetodynamics and detection at haloscope experiments

Chang-Jie Dai, Tong Li, Rui-Jia Zhang

#### 053106 CP asymmetry from the effect of isospin symmetry breaking during $B$ -meson decay

Wan-Ying Yao, Gang Lü, Xin-Heng Guo, Hai-Feng Ou

#### 053107 Growing evidence for a Higgs triplet

Andreas Crivellin, Saiyad Ashanujjaman, Sumit Banik, Guglielmo Coloretti, Siddharth P. Maharathy, Bruce Mellado

### NUCLEAR PHYSICS

#### 054101 Three-nucleon correlations in light nuclei yield ratios from the AMPT model for QCD critical point investigations

Ning Yu, Zuman Zhang, Hongge Xu, Zhong Zhu

(Continued on inside back cover)

国内统一刊号：CN 11-5641/O4

国内邮发代号：2-522

定价：150.00 元

国内外公开发行 \* 版权所有 翻印必究

- 054102 **Symmetry energy effect on hot nuclear matter and proto-neutron stars**  
Xuhao Wu, Peng-Cheng Chu, Min Ju, He Liu
- 054103 **Exploring percolation phase transition in the three-dimensional Ising model with machine learning**  
Ranran Guo, Xiaobing Li, Rui Wang, Shiyang Chen, Yuanfang Wu, Zhiming Li
- 054104  **$\alpha$  decay properties of superheavy nuclei based on optimized  $\alpha$  decay energies**  
Jun-Gang Deng, Jia-Xing Li, Jun-Hao Cheng, Lin Mu, Hong-Fei Zhang
- 054105 **Coexistence and band mixing in  $^{114,116}\text{Cd}$**   
Amir Jalili
- 054106 **Model for Glauber-type calculations of beam fragmentation at low energies**  
A. N. Ismailova, Yu. L. Parfenova, P. G. Sharov, D. M. Janseitov
- 054107 **Predictions for the synthesis of new superheavy nuclei with a  $^{252}\text{Cf}$  target**  
Ming-Hao Zhang, Ying Zou, Mei-Chen Wang, Qing-Lin Niu, Gen Zhang, Feng-Shou Zhang
- 054108 **Impact of quadrupole and hexadecapole deformations and associated orientations on a variety of asymmetric nuclear reactions**  
Diksha, Harshit Sharma, Manoj K. Sharma
- 054109 **Sub-barrier fusion cross sections: role of Pauli blocking and isospin asymmetry**  
Weiwen Deng, Kaixuan Cheng, Chang Xu
- 054110 **Effect of nucleus deformation on final-state flow harmonics**  
Henrique Mascalhusk, Dener S. Lemos, Otavio Socolowski Jr., Wei-Liang Qian, Sandra S. Padula, Rui-Hong Yue
- 054111 **Investigation of spectral properties of  $^{11}\text{Be}$  in breakup reactions**  
D S Valiolda, D M Janseitov, V S Melezhik
- 054112 **Energy dependence of fission product yields in  $^{235}\text{U}(n, f)$  within the Langevin approach incorporated with the statistical model**  
Li-Le Liu, Yong-Jing Chen, Zhi-Gang Ge, Xiao-Long Huang, Cai-Wan Shen, Neng-Chuan Shu, Xi-Zhen Wu, Zhu-Xia Li
- PARTICLE AND NUCLEAR ASTROPHYSICS AND COSMOLOGY**
- 055101 **Astrophysical properties of static black holes embedded in a Dehnen type dark matter halo with the presence of quintessential field**  
Ahmad Al-Badawi, Sanjar Shaymatov
- 055102 **Plasma effects on weak gravitational lensing and shadows of Sen black holes**  
Dilmurod Umarov, Odil Yunusov, Farruh Atamurotov, Ahmadjon Abdujabbarov, Sushant G. Ghosh
- 055103 **Off-equatorial deflections and gravitational lensing. II. In general stationary and axisymmetric spacetimes**  
Xinguang Ying, Junji Jia
- 055104 **Accretion with back-reaction onto a cylindrically symmetric black hole with energy condition analysis**  
M. Zubair Ali Moughal, Kamran Qadir Abbasi
- 055105 **Impact of the Bose-Einstein density profile on anisotropic compact stars under  $f(Q)$  gravity**  
Chaitra Chooda Chalavadi, V. Venkatesha
- 055106 **Black hole tunneling in loop quantum gravity**  
Hongwei Tan, Rongzhen Guo, Jingyi Zhang
- 055107 **Model-independent constraints on the Hubble constant using lensed quasars and the latest supernova**  
Liang Liu, Ai-Yang Bi, Li Tang, Ying Wu