

# Chinese Physics C

Volume 49 Number 3 March 2025

## CONTENTS

### PARTICLES AND FIELDS

- 033101 **Modification of the Sommerfeld effect due to coannihilator decays**  
Feng Luo
- 033102 **Soft pattern of Rutherford scattering from heavy target mass expansion**  
Yu Jia, Jia-Yue Zhang
- 033103 **Fused model of the alternating spin chain from ABJM theory**  
Nan Bai, Fan Feng, Mao-Zhong Shao
- 033104 **Potential to identify neutrino mass ordering with reactor antineutrinos at JUNO**  
Angel Abusleme *et al.* (The JUNO Collaboration)

### NUCLEAR PHYSICS

- 034101 **Odd-even mass differences of well and rigidly deformed nuclei in the rare earth region: Test of a newly proposed fit for average pairing matrix elements**  
T. V. Nhan Hao, N. N. Bao Nguyen, D. Quang Tam, P. Quentin, L. Bonneau, Meng-Hock Koh
- 034102 **Systematic research on the ground state properties of medium-mass neutron-rich nuclei**  
Chen He, Xue-Neng Cao, Xian-Xian Zhou
- 034103 **Simulation of dark scalar particle sensitivity in  $\eta$  rare decay channels at HIAF**  
Yang Liu, Rong Wang, Zaiba Mushtaq, Ye Tian, Xionghong He, Hao Qiu, Xurong Chen
- 034104 **Evaluation of fission fragment moments of inertia for spontaneous fission of CF-252**  
D. E. Lyubashevsky, P. V. Kostyukov, A. A. Pisklyukov, J. D. Shcherbina
- 034105 **Revisiting the alpha-decay reduced width of the lightest uranium isotope  $^{214}\text{U}$**   
Shuangshuang Zhang, Yongjia Wang, Xiaotao He
- 034106 **Enhanced empirical formulas for  $\alpha$ -decay of heavy and superheavy nuclei: Incorporating deformation effects of daughter nuclei**  
M. Ismail, A. Adel, Asmaa Ibrahim
- 034107 **Investigation of decay mechanisms and associated aspects of exotic nobelium isotopes using the Skyrme energy density formalism**  
Shubhpreet Kaur, Raj Kumar, Manoj K. Sharma
- 034108 **Time-reversal invariance violation effect in  $dd$  scattering**  
M. N. Platonova, Yu. N. Uzikov

(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

034109 **Coupled channel analysis of neutron transfer in  ${}^{6,7}\text{Li}$  induced reactions around the Coulomb barrier**  
Himanshu Sharma, Rishabh Kumar, Moumita Maiti

#### **PARTICLE AND NUCLEAR ASTROPHYSICS AND COSMOLOGY**

035001 **Layout optimization and performance analysis of large array of imaging atmospheric Cherenkov telescopes**  
Zhipeng Zhang, Ruizhi Yang, Shoushan Zhang, Zhen Xie, Jiali Liu, Liqiao Yin, Yudong Wang, Lingling Ma, Zhen Cao

035101 **Gravitational waves and primordial black holes from axion domain walls in level crossing**  
Hai-Jun Li, Yu-Feng Zhou

035102 **Evolution of the universe prior to inflation in loop quantum cosmology**  
M. Shahalam

035103 **Quantifying the memory and dynamical stability of magnetar bursts**  
Yu Sang, Hai-Nan Lin

035104 **Complexity growth for AdS black holes in the presence of backreaction**  
Long Guo, Zi-qiang Zhang

035105 **Schottky anomaly of Reissner-Nordström-de Sitter spacetime**  
Hai-Long Zhen, Yu-Bo Ma, Huai-Fan Li, Li-Chun Zhang, Yun-Zhi Du

035106 **Universal thermodynamic relations with constant corrections for five-dimensional de Sitter spacetime**  
Yubo Ma, Songtao Zheng, Jing Li

035107 **Effective potential and topological photon spheres: a novel approach to black hole parameter classification**  
Mohammad Ali S. Afshar, Jafar Sadeghi

035108 **Holographic Einstein rings of AdS black holes in Horndeski theory**  
Zhi Luo, Ke-Jian He, Jin Li

035109 **Constraints on brane geometry from massive vector KK modes**  
Chun-E Fu, Heng Guo, Ye-Hao Yang

035110 **Thermodynamic topology of Kiselev-AdS black holes within  $f(R, T)$  gravity**  
Saeed Noori Gashti, Mohammad Ali S. Afshar, Mohammad Reza Alipoury, Yassine Sekhmani, Jafar Sadeghi, Javlon Rayimbaeva

035111 **Off-equatorial deflections and gravitational lensing in Kerr spacetime and the effect of spin**  
Tingyuan Jiang, Xiaoge Xu, Junji Jia

#### **Erratum and Addendum**

039001 **Erratum and Addendum: Analytical formula for the cross section of hadron 2 production from  $e^+e^-$  collisions around the narrow charmonium resonances (Chin. Phys. C, 48(11): 113104 (2024))**  
Yanan Wang, Yadi Wang, Ping Wang