

PHYSICAL REVIEW D

For editorial and subscription correspondence,
please see inside front cover
(ISSN: 1550-7998)

PERIODICALS

Postmaster send address changes to:

APS Subscription Services
P.O. Box 41
Annapolis Junction, MD 20701

THIRD SERIES, VOLUME 105, NUMBER 10

CONTENTS

D15 MAY 2022

*The Table of Contents is a total listing of Parts A, B and C.
Part A consists of articles 101301–103522, Part B articles 103523–104048,
and Part C articles 104049–109904(E)*

PART A

LETTERS

Fast neutrino flavor instability and neutrino flavor lepton number crossings (7 pages) Taiki Morinaga	L101301
Gravitino constraints on supergravity inflation (5 pages) Shinsuke Kawai and Nobuchika Okada	L101302
Covariant formulation of the generalized uncertainty principle (6 pages) Raghvendra Singh and Dawood Kothawala	L101501
Proof of the equivalence of the symplectic forms derived from the canonical and the covariant phase space formalisms (6 pages) Juan Margalef-Bentabol and Eduardo J. S. Villaseñor	L101701

ARTICLES

All-sky search for gravitational wave emission from scalar boson clouds around spinning black holes in LIGO O3 data (28 pages) R. Abbott <i>et al.</i> (The LIGO Scientific Collaboration, the Virgo Collaboration, and the KAGRA Collaboration)	102001
Optimizing gravitational-wave detector design for squeezed light (13 pages) Jonathan W. Richardson, Swadha Pandey, Edita Bytyqi, Tega Edo, and Rana X. Adhikari	102002
Performance of random template banks (9 pages) Bruce Allen	102003
Axion search with quantum nondemolition detection of magnons (10 pages) Tomonori Ikeda, Asuka Ito, Kentaro Miuchi, Jiro Soda, Hisaya Kurashige, and Yutaka Shikano	102004
Data mining and machine learning improve gravitational-wave detector sensitivity (9 pages) Gabriele Vajente	102005
Could trapped quintessence account for the laser-detuning-dependent acceleration of cold atoms in varying-frequency time-of-flight experiments? (23 pages) Hai-Chao Zhang, Xin-Ping Xu, Jing-Fang Zhang, and Chuan Wang	102006
Effect of Earth-Moon's gravity on TianQin's range acceleration noise. II. Impact of orbit selection (8 pages) Chengjian Luo and Xuefeng Zhang	102007
Comprehensive study of amorphous metal oxide and Ta ₂ O ₅ -based mixed oxide coatings for gravitational-wave detectors (10 pages) Mariana A. Fazio, Gabriele Vajente, Le Yang, Alena Ananyeva, and Carmen S. Menoni	102008



Copyright 2022 American Physical Society

(Continued)



2470-0010(20220515)105:10;1-#



This paper was highlighted in the APS publication *Physics* (physics.aps.org).

By suggesting a few manuscripts each week, we hope to promote reading across fields. Please see our Announcement Phys. Rev. D **90**, 020001 (2014).

Hierarchical approach to matched filtering using a reduced basis (17 pages)	103001
Rahul Dhurkunde, Henning Fehrmann, and Alexander H. Nitz	
Many-body effects of collective neutrino oscillations (6 pages)	103002
Zewei Xiong (熊泽玮)	
Inference of bipolar neutrino flavor oscillations near a core-collapse supernova based on multiple measurements at Earth (13 pages)	103003
Eve Armstrong, Amol V. Patwardhan, A. A. Ahmetaj, M. Margarette Sanchez, Sophia Miskiewicz, Marcus Ibrahim, and Ishaan Singh	
Muon lateral distribution function of extensive air showers: Results of the Sydney University Giant Air-shower Recorder versus modern Monte Carlo simulations (7 pages)	103004
N. N. Kalmykov, I. S. Karpikov, G. I. Rubtsov, and S. V. Troitsky	
Sexaquark dilemma in neutron stars and its solution by quark deconfinement (23 pages)	103005
M. Shahrbafe, D. Blaschke, S. Typel, G. R. Farrar, and D. E. Alvarez-Castillo	
Simulation study of the relative Askaryan fraction at the south pole (10 pages)	103006
Ek Narayan Paudel, Alan Coleman, and Frank G. Schroeder	
Interpretation of the puzzling gamma-ray spectrum of the Geminga halo (7 pages)	103007
Kun Fang and Xiao-Jun Bi	
Modeling core-collapse supernovae gravitational-wave memory in laser interferometric data (19 pages)	103008
Colter J. Richardson, Michele Zanolin, Haakon Andresen, Marek J. Szczepańczyk, Kiranjyot Gill, and Annap Wongwathanarat	
Chiral symmetry restoration and Δ matter formation in neutron stars (13 pages)	103009
Michał Marczenko, Krzysztof Redlich, and Chihiro Sasaki	
Self-lensing flares from black hole binaries: General-relativistic ray tracing of black hole binaries (18 pages)	103010
Jordy Davelaar and Zoltán Haiman	
Nonthermally trapped inflation by tachyonic dark photon production (12 pages)	103011
Naoya Kitajima, Shota Nakagawa, and Fuminobu Takahashi	
Charged fluid nonconducting toroidal structures orbiting a Schwarzschild black hole immersed in a split-monopole magnetic field (12 pages)	103012
Zdeněk Stuchlík, Martin Blaschke, Jiří Kovář, and Petr Slaný	
Evidence of TeV halos around millisecond pulsars (10 pages)	103013
Dan Hooper and Tim Linden	
Neutron star properties with careful parametrization in the vector and axial-vector meson extended linear sigma model (17 pages)	103014
Péter Kovács, János Takátsy, Jürgen Schaffner-Bielich, and György Wolf	
Cointeracting dark matter and conformally coupled light scalars (16 pages)	103015
Philippe Brax, Carsten van de Bruck, and Sebastian Trojanowski	
Formulating bulk viscosity for neutron star simulations (18 pages)	103016
T. Celora, I. Hawke, P. C. Hammond, N. Andersson, and G. L. Comer	
Magnetized relativistic accretion disk around a spinning, electrically charged, accelerating black hole: Case of the C metric (11 pages)	103017
Shokoufe Faraji, Audrey Trova, and Vladimir Karas	
Asteroids for μHz gravitational-wave detection (50 pages)	103018
Michael A. Fedderke, Peter W. Graham, and Surjeet Rajendran	
Gravitational-wave evolution of newborn magnetars with different deformed structures (12 pages)	103019
Jun-Xiang Huang, Hou-Jun Lü, Jared Rice, and En-Wei Liang	
Large eddy simulations of magnetized mergers of neutron stars with neutrinos (20 pages)	103020
Carlos Palenzuela, Steven Liebling, and Borja Miñano	
Impact of noise transients on low latency gravitational-wave event localization (16 pages)	103021
Ronaldas Macas, Joshua Pooley, Laura K. Nuttall, Derek Davis, Martin J. Dyer, Yannick Leconte, Joseph D. Lyman, Jess McIver, and Katherine Rink	

(Continued)



Numerical relativity simulations of prompt collapse mergers: Threshold mass and phenomenological constraints on neutron star properties after GW170817 (<i>14 pages</i>)	103022
Rahul Kashyap, Abhishek Das, David Radice, Surendra Padamata, Aviral Prakash, Domenico Logoteta, Albino Perego, Daniel A. Godzieba, Sebastiano Bernuzzi, Ignazio Bombaci, Farrukh J. Fattoyev, Brendan T. Reed, and André da Silva Schneider	
Return of the templates: Revisiting the Galactic Center excess with multimessenger observations (<i>41 pages</i>)	103023
Ilias Cholis, Yi-Ming Zhong, Samuel D. McDermott, and Joseph P. Surdutovich	
Electron scattering of light new particles from evaporating primordial black holes (<i>10 pages</i>)	103024
Roberta Calabrese, Marco Chianese, Damiano F. G. Fiorillo, and Ninetta Saviano	
Quasinormal g modes of neutron stars with quarks (<i>15 pages</i>)	103025
Tianqi Zhao, Constantinos Constantinou, Prashanth Jaikumar, and Madappa Prakash	
Sensitivities on nonspinning and spinning primordial black hole dark matter with global 21-cm troughs (<i>14 pages</i>)	103026
Akash Kumar Saha and Ranjan Laha	
Statistical features of multiple Compton scattering in a strong magnetic field (<i>18 pages</i>)	103027
A. A. Mushtukov, I. D. Markozov, V. F. Suleimanov, D. I. Nagirner, A. D. Kaminker, A. Y. Potekhin, and S. Portegies Zwart	
Effects of peculiar velocities on the morphological properties of large-scale structure (<i>6 pages</i>)	103028
Aoxiang Jiang, Wei Liu, Wenjuan Fang, and Wen Zhao	
Exclusion limits on dark matter-neutrino scattering cross section (<i>12 pages</i>)	103029
Diptimoy Ghosh, Atanu Guha, and Divya Sachdeva	
Localization of gravitational waves using machine learning (<i>7 pages</i>)	103030
Seiya Sasaoka, Yilun Hou, Kentaro Somiya, and Hirotaka Takahashi	
Implementing a new recovery scheme for primitive variables in the general relativistic magnetohydrodynamic code Spritz (<i>17 pages</i>)	103031
Jay V. Kalinani, Riccardo Ciolfi, Wolfgang Kastaun, Bruno Giacomazzo, Federico Cipolletta, and Lorenzo Ennoggi	
Gravitational background from dynamical binaries and detectability with 2G detectors (<i>19 pages</i>)	103032
Carole Pérois, Filippo Santoliquido, Yann Bouffanais, Ugo N. Di Carlo, Nicola Giacobbo, Sara Rastello, Michela Mapelli, and Tania Regimbau	
Testing the universality of cosmic-ray nuclei from protons to oxygen with AMS-02 (<i>23 pages</i>)	103033
Michael Korsmeier and Alessandro Cuoco	
Upper limit on the axion-photon coupling from magnetic white dwarf polarization (<i>22 pages</i>)	103034
Christopher Dessert, David Dunsby, and Benjamin R. Safdi	
Distinguishing between dark-matter interactions with gravitational-wave detectors (<i>10 pages</i>)	103035
Andrew L. Miller, Francesca Badaracco, and Cristiano Palomba	
Improved Gibbs samplers for cosmic microwave background power spectrum estimation (<i>27 pages</i>)	103501
Gabriel Ducrocq, Nicolas Chopin, Josquin Errard, and Radek Stompor	
Exact general solutions for cosmological scalar field evolution in a background-dominated expansion (<i>10 pages</i>)	103502
Robert J. Scherrer	
Nonthermal neutrino-like hot dark matter in light of the S_8 tension (<i>17 pages</i>)	103503
Subinoy Das, Anshuman Maharana, Vivian Poulin, and Ravi Kumar Sharma	
Hints of dark matter-neutrino interactions in Lyman- α data (<i>11 pages</i>)	103504
Deanna C. Hooper and Matteo Lucca	
Kalb-Ramond field-induced cosmological bounce in generalized teleparallel gravity (<i>12 pages</i>)	103505
Krishnanand K. Nair and Mathew Thomas Arun	
Schrödinger-Poisson solitons: Perturbation theory (<i>14 pages</i>)	103506
J. Luna Zagorac, Isabel Sands, Nikhil Padmanabhan, and Richard Easther	
Grid-based calculations of redshift-space matter fluctuations from perturbation theory: UV sensitivity and convergence at the field level (<i>27 pages</i>)	103507
Atsushi Taruya, Takahiro Nishimichi, and Donghui Jeong	

(Continued)



Primordial black hole dark matter in the context of extra dimensions (39 pages)	103508
Avi Friedlander, Katherine J. Mack, Sarah Schon, Ningqiang Song, and Aaron C. Vincent	
Limit on the dark matter mass from its interaction with photons (14 pages)	103509
Zhihuan Zhou, Gang Liu, Yuhao Mu, and Lixin Xu	
Larger H_0 values in the CMB dipole direction (18 pages)	103510
Orlando Luongo, Marco Muccino, Eoin Ó. Colgáin, M. M. Sheikh-Jabbari, and Lu Yin	
Minimal dark energy: Key to sterile neutrino and Hubble constant tensions? (15 pages)	103511
Eleonora Di Valentino, Stefano Gariazzo, Carlo Giunti, Olga Mena, Supriya Pan, and Weiqiang Yang	
Decay of multiple dark matter particles to dark radiation in different epochs does not alleviate the Hubble tension (12 pages)	103512
Luis A. Anchordoqui, Vernon Barger, Danny Marfatia, and Jorge F. Soriano	
Sound velocity effects on the phase transition gravitational wave spectrum in the sound shell model (15 pages)	103513
Xiao Wang, Fa Peng Huang, and Yongping Li	
Toward early dark energy and $n_s = 1$ with <i>Planck</i> , ACT, and SPT observations (12 pages)	103514
Jun-Qian Jiang and Yun-Song Piao	
Cosmology of a supercooled universe (15 pages)	103515
Kiyoharu Kawana	
Stochastic effects in axion inflation and primordial black hole formation (25 pages)	103516
Alireza Talebian, Amin Nassiri-Rad, and Hassan Firouzjahi	
Nonminimally coupled ultralight axions as cold dark matter (15 pages)	103517
Kishan Sankharva and Shiv Sethi	
Universality of linear perturbations in $SU(N)$ natural inflation (12 pages)	103518
Tomohiro Fujita, Kai Murai, and Ryo Namba	
$SU(N)$ natural inflation (8 pages)	103519
Tomohiro Fujita, Kyohei Mukaida, Kai Murai, and Hiromasa Nakatsuka	
Parity violation in stochastic gravitational wave background from inflation in Nieh-Yan modified teleparallel gravity (10 pages)	103520
Rong-Gen Cai, Chengjie Fu, and Wang-Wei Yu	
Skewness as a test of dark energy perturbations (9 pages)	103521
Raquel Emy Fazolo, Luca Amendola, and Hermano Velten	
Axion cosmology in the presence of nontrivial Nambu-Goldstone modes (12 pages)	103522
M. Yoshimura	

PART B

Primordial standard clock models and CMB residual anomalies (37 pages)	103523
Matteo Braglia, Xingang Chen, and Dhiraj Kumar Hazra	
Relic gravitons at intermediate frequencies and the expansion history of the Universe (28 pages)	103524
Massimo Giovannini	
Self-interaction in a cosmic dark fluid: The four-kernel rheological extension of the equations of state (20 pages)	103525
Alexander B. Balakin and Alexei S. Ilin	
Testing $f(R)$ gravity models with quasar x-ray and UV fluxes (14 pages)	103526
Matías Leizerovich, Lucila Kraiselburd, Susana Landau, and Claudia G. Scóccola	
General double monodromy inflation (15 pages)	103527
Guido D'Amico, Nemanja Kaloper, and Alexander Westphal	
Constraining primordial black hole dark matter with CHIME fast radio bursts (12 pages)	103528
Keren Krochek and Ely D. Kovetz	
Exploring delaying and heating effects on the 21-cm signature of fuzzy dark matter (18 pages)	103529
Debanjan Sarkar, Jordan Flitter, and Ely D. Kovetz	
Primordial black holes from CDM isocurvature perturbations (11 pages)	103530
Samuel Passaglia and Misao Sasaki	

(Continued)



Marginal unbiased score expansion and application to CMB lensing (22 pages)	103531
Marius Millea and Uroš Seljak	
Q-balls in nonminimally coupled Palatini inflation and their implications for cosmology (27 pages)	103532
A. K. Lloyd-Stubbs and J. McDonald	
Discovering the building blocks of dark matter halo density profiles with neural networks (14 pages)	103533
Luisa Lucie-Smith, Hiranya V. Peiris, Andrew Pontzen, Brian Nord, Jeyan Thiyagalingam, and Davide Piras	
Towards an optimal estimation of cosmological parameters with the wavelet scattering transform (11 pages)	103534
Georgios Valogiannis and Cora Dvorkin	
Spectral distortion anisotropy from inflation for primordial black holes (12 pages)	103535
David Zegeye, Keisuke Inomata, and Wayne Hu	
Environment dependent electron mass and the Hubble constant tension (5 pages)	103536
Rance Solomon, Garvita Agarwal, and Dejan Stojkovic	
Dark Energy Survey Year 3 Results: Three-point shear correlations and mass aperture moments (23 pages)	103537
L. F. Secco <i>et al.</i> (DES Collaboration)	
Primordial black hole formation from massless scalar isocurvature (11 pages)	103538
Chul-Moon Yoo, Tomohiro Harada, Shin'ichi Hirano, Hirotada Okawa, and Misao Sasaki	
μ -hybrid inflation, gravitino dark matter, and stochastic gravitational wave background from cosmic strings (13 pages)	103539
Adeela Afzal, Waqas Ahmed, Mansoor Ur Rehman, and Qaisar Shafi	
Linear stability of black holes in shift-symmetric Horndeski theories with a time-independent scalar field (20 pages)	104001
Masato Minamitsuji, Kazufumi Takahashi, and Shinji Tsujikawa	
Possible consistent model of parity violations in the symmetric teleparallel gravity (7 pages)	104002
Mingzhe Li, Yeheng Tong, and Dehao Zhao	
Topology of black hole thermodynamics (6 pages)	104003
Shao-Wen Wei and Yu-Xiao Liu	
Constraining the Konoplya-Rezzolla-Zhidenko deformation parameters III: Limits from stellar-mass black holes using gravitational-wave observations (11 pages)	104004
Swarnim Shashank and Cosimo Bambi	
On-shell Lagrangian of an ideal gas (8 pages)	104005
P. P. Avelino and R. P. L. Azevedo	
Stealth metastable state of scalar-tensor thermodynamics (7 pages)	104006
Valerio Faraoni and Théo B. Franconnet	
Gravitational-wave echoes from numerical-relativity waveforms via spacetime construction near merging compact objects (23 pages)	104007
Sizheng Ma, Qingwen Wang, Nils Deppe, François Hébert, Lawrence E. Kidder, Jordan Moxon, William Throwe, Nils L. Vu, Mark A. Scheel, and Yanbei Chen	
Birefringence of wave packets in gravity (10 pages)	104008
Dan-Dan Lian and Xiang-Song Chen	
Time orientability and particle production from universal horizons (6 pages)	104009
Francesco Del Porro, Mario Herrero-Valea, Stefano Liberati, and Marc Schneider	
Orbits in bootstrapped Newtonian gravity (11 pages)	104010
Anna D'Addio, Roberto Casadio, Andrea Giusti, and Mariafelicia De Laurentis	
Boundary conditions for stationary black holes: Application to Kerr, Martínez-Troncoso-Zanelli, and hairy black holes (20 pages)	104011
Philippe Grandclément and Jordan Nicoules	
Steady critical accretion onto black holes: Self-gravity and sonic point characteristics (20 pages)	104012
Ptryk Mach and Edward Malec	
Static, spherically symmetric objects in type-II minimally modified gravity (10 pages)	104013
Antonio De Felice, Shinji Mukohyama, and Masroor C. Pookkillath	
Entropy of Kerr-Newman-AdS black holes with torsion (10 pages)	104014
M. Blagojević and B. Cvetković	

(Continued)



High precision ringdown modeling: Multimode fits and BMS frames (19 pages)	104015
Lorena Magaña Zertuche, Keefe Mitman, Neev Khera, Leo C. Stein, Michael Boyle, Nils Deppe, François Hébert, Dante A. B. Iozzo, Lawrence E. Kidder, Jordan Moxon, Harald P. Pfeiffer, Mark A. Scheel, Saul A. Teukolsky, William Throwe, and Nils Vu	
Toward inference of overlapping gravitational-wave signals (14 pages)	104016
Elia Pizzati, Surabhi Sachdev, Anuradha Gupta, and B. S. Sathyaprakash	
Understanding gravitational entropy of black holes: A new proposal via curvature invariants (13 pages)	104017
Daniele Gregoris and Yen Chin Ong	
Slowly rotating neutron star with holographic multi-quark core: I-Love-Q relations (10 pages)	104018
Piyabut Burikham, Sitthichai Pinkanjanarod, and Supakchai Ponglertsakul	
Probing neutron stars with the full premerger and postmerger gravitational wave signal from binary coalescences (25 pages)	104019
Marcella Wijngaarden, Katerina Chatziioannou, Andreas Bauswein, James A. Clark, and Neil J. Cornish	
New interior model of neutron stars (10 pages)	104020
Camilo Posada, Jan Hladík, and Zdeněk Stuchlík	
Classification of static black holes in Einstein phantom-dilaton Maxwell–anti-Maxwell gravity systems (6 pages)	104021
Marek Rogatko	
Cuscuta-Galileon cosmology: Dynamics, gravitational constants, and the Hubble constant (26 pages)	104022
Kei-ichi Maeda and Sirachak Panpanich	
Resonances, black hole mimickers, and the greenhouse effect: Consequences for gravitational-wave physics (13 pages)	104023
Vitor Cardoso and Francisco Duque	
Path integral and instantons for the dynamical process and phase transition rate of Reissner-Nordström-AdS black holes (14 pages)	104024
Conghua Liu and Jin Wang	
Loop representation and r-Fock measures for $SU(N)$ gauge theories (17 pages)	104025
Mehdi Assanioussi and Jerzy Lewandowski	
Light bending and gravitational lensing in energy-momentum-squared gravity (21 pages)	104026
Elham Nazari	
New pseudospectral code for the construction of initial data (18 pages)	104027
Alireza Rashti, Francesco Maria Fabbri, Bernd Brügmann, Swami Vivekanandji Chaurasia, Tim Dietrich, Maximiliano Ujevic, and Wolfgang Tichy	
Jet launching from binary neutron star mergers: Incorporating neutrino transport and magnetic fields (32 pages)	104028
Lunan Sun, Milton Ruiz, Stuart L. Shapiro, and Antonios Tsokaros	
Axion gravitodynamics, Lense-Thirring effect, and gravitational waves (8 pages)	104029
Athanasios Chatzistavrakidis, Georgios Karagiannis, George Manolakos, and Peter Schupp	
Exploiting Newton-factorized, 2PN-accurate waveform multipoles in effective-one-body models for spin-aligned noncircularized binaries (34 pages)	104030
Andrea Placidi, Simone Albanesi, Alessandro Nagar, Marta Orselli, Sebastiano Bernuzzi, and Gianluca Grignani	
Assessment of effective-one-body radiation reactions for generic planar orbits (22 pages)	104031
Simone Albanesi, Alessandro Nagar, Sebastiano Bernuzzi, Andrea Placidi, and Marta Orselli	
Quasinormal ringing of general spherically symmetric parametrized black holes (10 pages)	104032
R. A. Konoplya and A. Zhidenko	
Hyperboloidal method for frequency-domain self-force calculations (28 pages)	104033
Rodrigo Panosso Macedo, Benjamin Leather, Niels Warburton, Barry Wardell, and Anil Zenginoğlu	
Kerr-Newman black hole lensing of relativistic massive particles in the weak-field limit (30 pages)	104034
Guansheng He and Wenbin Lin	
Third post-Newtonian gravitational radiation from two-body scattering. II. Hereditary energy radiation (16 pages)	104035
Gihyuk Cho	
Junction conditions and sharp gradients in generalized coupling theories (18 pages)	104036
Justin C. Feng, Shinji Mukohyama, and Sante Carloni	
Fast hyperbolic relaxation elliptic solver for numerical relativity: Conformally flat, binary puncture initial data (16 pages)	104037
Thiago Assumpção, Leonardo R. Werneck, Terrence Pierre Jacques, and Zachariah B. Etienne	

(Continued)



This paper was highlighted in the APS publication *Physics* (physics.aps.org).

By suggesting a few manuscripts each week, we hope to promote reading across fields. Please see our Announcement Phys. Rev. D **90**, 020001 (2014).

CONTENTS - *Continued*

PHYSICAL REVIEW D

THIRD SERIES, VOLUME 105, NUMBER 10

D15 MAY 2022

Exact model for evaporating primordial black holes in a cosmological spacetime (12 pages)	104038
Semin Xavier, Alan Sunny, and S. Shankaranarayanan	
Topological black holes with curvature induced scalarization in the extended scalar-tensor theories (16 pages)	104039
Stella Kiorpelidi, George Koutsoumbas, Andri Machattou, and Eleftherios Papantonopoulos	
Dynamical photon sphere and time evolving shadow around black holes with temporal accretion (24 pages)	104040
Yasutaka Koga, Nobuyuki Asaka, Masashi Kimura, and Kazumasa Okabayashi	
Relativistic nontopological soliton stars in a U(1) gauge Higgs model (11 pages)	104041
Yota Endo, Hideki Ishihara, and Tatsuya Ogawa	
Quasinormal modes and late-time falloff of Finslerian black holes with cosmological constant (14 pages)	104042
Tian-Yang Li, Su-Ping Zhao, and Xin Li	
Black-hole perturbation theory with post-Newtonian theory: Towards hybrid waveforms for neutron-star binaries (20 pages)	104043
Xuefeng Feng, Zhenwei Lyu, and Huan Yang	
Vainshtein screening in Horndeski theories nonminimally and kinetically coupled to ordinary matter (10 pages)	104044
Kitaro Taniguchi and Ryotaro Kase	
Ringling black holes are superradiant: The case of ultralight scalar fields (15 pages)	104045
Rajesh Karmakar and Debaprasad Maity	
Rotating structure of the Euler-Heisenberg black hole (11 pages)	104046
Nora Bretón, Claus Lämmerzahl, and Alfredo Macías	
Survival of black holes through a cosmological bounce (11 pages)	104047
Daniela Pérez and Gustavo E. Romero	
Triple points and novel phase transitions of dyonic AdS black holes with quasitopological electromagnetism (16 pages)	104048
Ming-Da Li, Hui-Min Wang, and Shao-Wen Wei	

PART C

Echoes from classical black holes (11 pages)	104049
Hyat Huang, Min-Yan Ou, Meng-Yun Lai, and H. Lü	
Energy for accelerating observers in black hole spacetimes (11 pages)	104050
Seth A. Major	
Decoupling-limit consistency of the generalized SU(2) Proca theory (10 pages)	104051
Alexander Gallego Cadavid, Carlos M. Nieto, and Yeinzon Rodríguez	
Gravitational influence of high power laser pulses (15 pages)	104052
Paul Lageyre, Emmanuel d'Humières, and Xavier Ribeyre	
Topology of black hole thermodynamics in Gauss-Bonnet gravity (13 pages)	104053
Pavan Kumar Yerra and Chandrasekhar Bhamidipati	
Chirality of gravitational waves in Chern-Simons $f(R)$ gravity cosmology (11 pages)	104054
S. D. Odintsov and V. K. Oikonomou	
Superradiance in massive vector fields with spatially varying mass (13 pages)	104055
Zipeng Wang, Thomas Helfer, Katy Clough, and Emanuele Berti	
Using machine learning to autotune chi-squared tests for gravitational wave searches (10 pages)	104056
Connor McIsaac and Ian Harry	
Head-on collisions of ℓ -boson stars (23 pages)	104057
Víctor Jaramillo, Nicolas Sanchis-Gual, Juan Barranco, Argelia Bernal, Juan Carlos Degollado, Carlos Herdeiro, Miguel Megevand, and Darío Núñez	
Scalar Čerenkov radiation from high-energy cosmic rays (9 pages)	104058
Charles Dalang, Pierre Fleury, and Lucas Lombriser	
Motion of charged and spinning particles influenced by dark matter field surrounding a charged dyonic black hole (23 pages)	104059
Sanjar Shaymatov, Pankaj Sheoran, and Sanjay Siwach	

(Continued)



This paper was highlighted in the APS publication *Physics* (physics.aps.org).

By suggesting a few manuscripts each week, we hope to promote reading across fields. Please see our Announcement Phys. Rev. D **90**, 020001 (2014).

Nonmetricity theories and aspects of gauge symmetry (23 pages)	104060
Israel Quiros	
Spin Hall effects and the localization of massless spinning particles (27 pages)	104061
Abraham I. Harte and Marius A. Oancea	
Detection of gravitational wave mixed polarization with single space-based detectors (15 pages)	104062
Chao Zhang, Yungui Gong, Dicong Liang, and Chunyu Zhang	
Boson stars and black holes with wavy scalar hair (13 pages)	104063
Yves Brihaye and Betti Hartmann	
Slowly rotating black holes in nonlinear electrodynamics (11 pages)	104064
David Kubizňák, Tayebah Tahamtan, and Otakar Svátek	
Is there a trade-off relation between efficiency and power in a collisional Penrose process in an extreme Reissner-Nordström spacetime? (5 pages)	104065
Naoki Tsukamoto	
Population inference of spin-induced quadrupole moments as a probe for nonblack hole compact binaries (15 pages)	104066
Muhammed Saleem, N. V. Krishnendu, Abhirup Ghosh, Anuradha Gupta, W. Del Pozzo, Archisman Ghosh, and K. G. Arun	
Milky Way and M31 rotation curves: Λ CDM versus MOND (7 pages)	104067
De-Chang Dai, Glenn Starkman, and Dejan Stojkovic	
Aspects of quasilocal energy for gravity coupled to gauge fields (14 pages)	104068
Puskar Mondal and Shing-Tung Yau	
Moving kinks and their wave packets (15 pages)	105001
Jarah Evslin	
Uniformizing Lee-Yang singularities (19 pages)	105002
Gökçe Başar, Gerald V. Dunne, and Zelong Yin	
Free energy and entropy in Rindler and de Sitter space-times (19 pages)	105003
E. T. Akhmedov and D. V. Diakonov	
κ -deformed complex scalar field: Conserved charges, symmetries, and their impact on physical observables (20 pages)	105004
Andrea Bevilacqua, Jerzy Kowalski-Glikman, and Wojciech Wiślicki	
Asymptotic safety guaranteed for strongly coupled gauge theories (12 pages)	105005
Andrew D. Bond and Daniel F. Litim	
Relations among topological solitons (19 pages)	105006
Muneto Nitta	
Universal expansions of scattering amplitudes for gravitons, gluons, and Goldstone particles (9 pages)	105007
Jin Dong, Song He, and Linghui Hou	
Gauge anomalies of finite groups (5 pages)	105008
Ben Gripaios	
Expanding edges of quantum Hall systems in a cosmology language: Hawking radiation from de Sitter horizon in edge modes (14 pages)	105009
Masahiro Hotta, Yasusada Nambu, Yuuki Sugiyama, Kazuhiro Yamamoto, and Go Yusa	
Semiclassical gravitational collapse of a radially symmetric massless scalar quantum field (22 pages)	105010
Jana N. Guenther, Christian Hoelbling, and Lukas Varnhorst	
Unexciting non-Abelian electric fields (10 pages)	105011
Tanmay Vachaspati	
Correlation functions of the anharmonic oscillator: Numerical verification of two-loop corrections to the large-order behavior (21 pages)	105012
Ludovico T. Giorgini, Ulrich D. Jentschura, Enrico M. Malatesta, Giorgio Parisi, Tommaso Rizzo, and Jean Zinn-Justin	
Quantum flavor vacuum in the expanding universe: A possible candidate for cosmological dark matter? (20 pages)	105013
Antonio Capolupo, Sante Carloni, and Aniello Quaranta	
Repulsive to attractive fluctuation-induced forces in disordered Landau-Ginzburg model (10 pages)	105014
C. D. Rodríguez-Camargo, A. Saldivar, and N. F. Svaiter	

(Continued)



All two-loop, color-dressed, six-point amplitude integrands in supersymmetric Yang-Mills theory (8 pages)	105015
Jacob L. Bourjaily, Cameron Langer, and Yaqi Zhang	
Observer dependence of photon bunching: The influence of the relativistic redshift on Hong-Ou-Mandel interference (13 pages)	105016
Roy Barzel, David Edward Bruschi, Andreas W. Schell, and Claus Lämmerzahl	
Ground state for the Klein-Gordon field in anti-de Sitter spacetime with dynamical Wentzell boundary conditions (12 pages)	105017
Claudio Dappiaggi, Benito A. Juárez-Aubry, and Alessio Marta	
One-loop tunneling-induced energetics (8 pages)	105018
Jean Alexandre and Drew Backhouse	
Loop corrections to cosmological particle creation (17 pages)	105019
E. T. Akhmedov and P. A. Anempodistov	
Scalar quantum fields in cosmologies with $2 + 1$ spacetime dimensions (18 pages)	105020
Natalia Sánchez-Kuntz, Álvaro Parra-López, Mireia Tolosa-Simeón, Tobias Haas, and Stefan Floerchinger	
Properties of the linearized functional renormalization group (10 pages)	105021
Tim R. Morris	
Symplectic quantization of multifield generalized Proca electrodynamics (14 pages)	105022
Verónica Errasti Díez and Marina Krstić Marinković	
Induced Chern-Simons term by dimensional reduction (6 pages)	105023
C. D. Fosco and F. A. Schaposnik	
Coupling the precursor of the most general theory of electromagnetism invariant under duality and conformal invariance with scalars, and Blon-type solutions (11 pages)	105024
Horatiu Nastase	
Nonlocal partner to the cosmological constant (8 pages)	105025
John F. Donoghue	
Classical Kalb-Ramond field theory in curved spacetimes (11 pages)	105026
Bertrand Berche, Sébastien Fumeron, and Fernando Moraes	
Effect of relativity and vacuum fluctuations on quantum measurement (15 pages)	105027
Adam Bednorz and Wolfgang Belzig	
New guest in the third quantized multiverse (4 pages)	106001
Samuel Barroso Bellido and Fabian Wagner	
Phase transitions of correlations in black hole geometries (24 pages)	106002
Sristy Agrawal, Oliver DeWolfe, Joshua Levin, and Graeme Smith	
Confinement-deconfinement temperature for a rotating quark-gluon plasma (8 pages)	106003
Nelson R. F. Braga, Luiz F. Faulhaber, and Octavio C. Junqueira	
New supersymmetric Janus solutions from $N = 4$ gauged supergravity (13 pages)	106004
Tissana Assawasowan and Parinya Karndumri	
Solving formally the auxiliary system of $O(N)$ nonlinear sigma model (6 pages)	106005
Dimitrios Katsinis	
Covariant BRST quantization of unimodular gravity. II. Formulation with a vector antighost (13 pages)	106006
Taichiro Kugo, Ryuichi Nakayama, and Nobuyoshi Ohta	
Genus-one data and anomaly detection (8 pages)	106007
Matthew Yu	
Deriving the dilaton potential in improved holographic QCD from the meson spectrum (7 pages)	106008
Koji Hashimoto, Keisuke Ohashi, and Takayuki Sumimoto	
Quantum cosmological backreactions. I. Cosmological space adiabatic perturbation theory (39 pages)	106009
S. Schander and T. Thiemann	
Quantum cosmological backreactions. II. Purely homogeneous quantum cosmology (18 pages)	106010
J. Neuser, S. Schander, and T. Thiemann	
Quantum cosmological backreactions. III. Deparametrized quantum cosmological perturbation theory (14 pages)	106011
S. Schander and T. Thiemann	

(Continued)



CONTENTS - *Continued*

PHYSICAL REVIEW D

THIRD SERIES, VOLUME 105, NUMBER 10

D15 MAY 2022

Quantum cosmological backreactions. IV. Constrained quantum cosmological perturbation theory (29 pages)	106012
S. Schander and T. Thiemann	
Quantum instability of gauge theories on κ -Minkowski space (12 pages)	106013
Kilian Hersent, Philippe Mathieu, and Jean-Christophe Wallet	
Holographic thermodynamics requires a chemical potential for color (10 pages)	106014
Manus R. Visser	
Duality covariant field redefinitions (14 pages)	106015
Walter H. Baron	
Target space diffeomorphisms in Poisson sigma models and asymptotic symmetries in 2D dilaton gravities (10 pages)	106016
Carlos Valcárcel and Dmitri Vassilevich	
Revisiting the algebraic structure of the generalized uncertainty principle (12 pages)	106017
Matteo Fadel and Michele Maggiore	
Numerical analysis of the self-energy in covariant loop quantum gravity (16 pages)	106018
Pietro Paolo Frisoni, Francesco Gozzini, and Francesca Vidotto	
Observable effect of quantized cylindrical gravitational waves (9 pages)	106019
Feifan He and Baocheng Zhang	
Relational evolution with oscillating clocks (17 pages)	106020
Martin Bojowald, Luis Martínez, and Garrett Wendel	
Background independence of effective actions at critical dimension (10 pages)	106021
Mohammad R. Garousi	
Weak-gravity bound in asymptotically safe gravity-gauge systems (17 pages)	106022
A. Eichhorn, J. H. Kwapisz, and M. Schiffer	
Dynamical realizations of the Lifshitz group (10 pages)	106023
Anton Galajinsky	
Penrose limits in massive type-IIa AdS_3 background (10 pages)	106024
Sourav Roychowdhury and Prasanta K. Tripathy	
Renormalization in $\overline{\text{TT}}$ -deformed nonintegrable theories (14 pages)	106025
Subhroneel Chakrabarti, Arkajyoti Manna, and Madhusudhan Raman	
Running Newton coupling, scale identification, and black hole thermodynamics (13 pages)	106026
Chiang-Mei Chen, Yi Chen, Akihiro Ishibashi, Nobuyoshi Ohta, and Daiki Yamaguchi	
Black bounces and remnants in dilaton gravity (9 pages)	106027
Maxim Fitkevich	
Mechanism for the quantum natured gravitons to entangle masses (13 pages)	106028
Sougato Bose, Anupam Mazumdar, Martine Schut, and Marko Toroš	
Integer conformal dimensions for type IIa flux vacua (6 pages)	106029
Fien Apers, Joseph P. Conlon, Sirui Ning, and Filippo Revello	

COMMENTS

Comment on “Towards a quantum notion of covariance in spherically symmetric loop quantum gravity” (4 pages)	108901
Martin Bojowald	
Reply to “Comment on ‘Towards a quantum notion of covariance in spherically symmetric loop quantum gravity’” (2 pages)	108902
Rodolfo Gambini, Javier Olmedo, and Jorge Pullin	

ERRATA

Erratum: Relativistic hybrid stars in light of the NICER PSR J0740 + 6620 radius measurement [Phys. Rev. D 104 , 121302 (2021)] (1 pages)	109901
Jia Jie Li, Armen Sedrakian, and Mark Alford	

(Continued)



This paper was highlighted in the APS publication *Physics* (physics.aps.org).

By suggesting a few manuscripts each week, we hope to promote reading across fields. Please see our Announcement Phys. Rev. D **90**, 020001 (2014).

CONTENTS - *Continued*

PHYSICAL REVIEW D

THIRD SERIES, VOLUME 105, NUMBER 10

D15 MAY 2022

Erratum: Tidal response from scattering and the role of analytic continuation [Phys. Rev. D 104 , 124061 (2021)] (3 pages) Gastón Creci, Tanja Hinderer, and Jan Steinhoff	109902
Erratum: Post-Newtonian dynamics and black hole thermodynamics in Einstein-scalar-Gauss-Bonnet gravity [Phys. Rev. D 100 , 104061 (2019)] (1 pages)	109903
Félix-Louis Julié and Emanuele Berti	
Erratum: Impact of Schumann resonances on the Einstein Telescope and projections for the magnetic coupling function [Phys. Rev. D 104 , 122006 (2021)] (2 pages)	109904
Kamiel Janssens, Katarina Martinovic, Nelson Christensen, Patrick M. Meyers, and Mairi Sakellariadou	



This paper was highlighted in the APS publication *Physics* (physics.aps.org).

By suggesting a few manuscripts each week, we hope to promote reading across fields. Please see our Announcement Phys. Rev. D **90**, 020001 (2014).