PHYSICAL REVIEW D

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

PERIODICALS
Postmaster send address changes to:
PHYSICAL REVIEW D
APS Subscription Services
Suite 1NO1
2 Huntington Quadrangle
Melville, NY 11747-4502

THIRD SERIES, VOLUME 82, NUMBER 8 *CONTENTS* **D15 OCTOBER 2010**

RAPID COMMUNICATIONS

Using clusters in Sunyaev-Zel'dovich effect plus x-ray surveys as an ensemble of rulers to constrain cosmology *(5 pages)* . . . 081301(R)
Satej Khedekar and Subhabrata Majumdar

10 GeV dark matter candidates and cosmic-ray antiprotons *(4 pages)* . . . 081302(R)
Julien Lavalle

Stability of the aether *(4 pages)* . . . 081501(R)
William Donnelly and Ted Jacobson

Mass deformed S parameter in conformal theories *(5 pages)* . . . 081701(R)
Francesco Sannino

ARTICLES

How to falsify the GR + ΛCDM model with galaxy redshift surveys *(6 pages)* . . . 082001
Viviana Acquaviva and Eric Gawiser

Binary pulsar constraints on the parametrized post-Einsteinian framework *(5 pages)* . . . 082002
Nicolás Yunes and Scott A. Hughes

Rational orbits around charged black holes *(14 pages)* . . . 083001
Vedant Misra and Janna Levin

Cosmic microwave background with Brans-Dicke gravity. I. Covariant formulation *(17 pages)* . . . 083002
Feng-Quan Wu, Li-e Qiang, Xin Wang, and Xuelei Chen

Cosmic microwave background with Brans-Dicke gravity. II. Constraints with the WMAP and SDSS data *(10 pages)* . . . 083003
Feng-Quan Wu and Xuelei Chen

Acceleration of particles as a universal property of rotating black holes *(5 pages)* . . . 083004
Oleg B. Zaslavskii

Primordial magnetic field limits from cosmological data *(7 pages)* . . . 083005
Tina Kahniashvili, Alexander G. Tevzadze, Shiv K. Sethi, Kanhaiya Pandey, and Bharat Ratra

Effective cosmological constant from TeV-scale physics *(16 pages)* . . . 083006
F. R. Klinkhamer

Big bang nucleosynthesis with a stiff fluid *(5 pages)* . . . 083501
Sourish Dutta and Robert J. Scherrer

On the evidence for axionlike particles from active galactic nuclei *(16 pages)* . . . 083502
Guido Walter Pettinari and Robert Crittenden

Chameleons with field-dependent couplings *(17 pages)* . . . 083503
Philippe Brax, Carsten van de Bruck, David F. Mota, Nelson J. Nunes, and Hans A. Winther

Distribution of annihilation luminosities in dark matter substructure *(10 pages)* . . . 083504
Savvas M. Koushiappas, Andrew R. Zentner, and Andrey V. Kravtsov

Copyright 2010 by The American Physical Society

(Continued)

1550-7998(20101015)82:8;1-L

PHYSICAL REVIEW D **THIRD SERIES, VOLUME 82, NUMBER 8** **D15 OCTOBER 2010**

Scattering of dark matter and dark energy *(5 pages)* 083505
Fergus Simpson

Flow in cyclic cosmology *(14 pages)* 083506
William H. Kinney and Azadeh Moradinezhad Dizgah

Multipoint propagators for non-Gaussian initial conditions *(14 pages)* 083507
Francis Bernardeau, Martín Crocce, and Emiliano Sefusatti

General relativistic description of the observed galaxy power spectrum: Do we understand what we measure? *(12 pages)* 083508
Jaiyul Yoo

Effect of low mass dark matter particles on the Sun *(14 pages)* 083509
Marco Taoso, Fabio Iocco, Georges Meynet, Gianfranco Bertone, and Patrick Eggenberger

Electrosphere of macroscopic ''quark nuclei'': A source for diffuse MeV emissions from dark matter *(19 pages)* 083510
Michael McNeil Forbes, Kyle Lawson, and Ariel R. Zhitnitsky

Constraints on primordial non-Gaussianity from WMAP7 and luminous red galaxies power spectrum and forecast for future surveys *(9 pages)* 083511
Francesco De Bernardis, Paolo Serra, Asantha Cooray, and Alessandro Melchiorri

Spherical collapse model in time varying vacuum cosmologies *(14 pages)* 083512
Spyros Basilakos, Manolis Plionis, and Joan Solà

Gravitational backreaction effects on the holographic phase transition *(19 pages)* 083513
T. Konstandin, G. Nardini, and M. Quiros

Probing dark matter with active galactic nuclei jets *(19 pages)* 083514
Mikhail Gorchtein, Stefano Profumo, and Lorenzo Ubaldi

Gauge conditions in combined dark energy and dark matter systems *(5 pages)* 083515
Adam J. Christopherson

Newman-Penrose Stokes fields for radio astronomy *(9 pages)* 083516
Ezra T. Newman and Richard H. Price

Confronting dark energy models using galaxy cluster number counts *(13 pages)* 083517
S. Basilakos, M. Plionis, and J. A. Lima

Gravitational waves from Abelian gauge fields and cosmic strings at preheating *(33 pages)* 083518
Jean-François Dufaux, Daniel G. Figueroa, and Juan García-Bellido

Small steps and giant leaps in the landscape *(10 pages)* 083519
Adam R. Brown and Alex Dahlen

Relative velocity of dark matter and baryonic fluids and the formation of the first structures *(11 pages)* 083520
Dmitriy Tseliakhovich and Christopher Hirata

Sunyaev-Zel'dovich effects from annihilating dark matter in the Milky Way: Smooth halo, subhalos, and intermediate-mass black holes *(14 pages)* 083521
Julien Lavalle

Integrated Sachs-Wolfe effect in a quintessence cosmological model: Including anisotropic stress of dark energy *(8 pages)* 083522
Y. T. Wang, L. X. Xu, and Y. X. Gui

Secondary graviton spectra and waterfall-like fields *(12 pages)* 083523
Massimo Giovannini

Proliferation of sharp kinks on cosmic (super)string loops with junctions *(17 pages)* 083524
P. Binétruy, A. Bohé, T. Hertog, and D. A. Steer

Sommerfeld enhancements for thermal relic dark matter *(19 pages)* 083525
Jonathan L. Feng, Manoj Kaplinghat, and Hai-Bo Yu

From $10 + 1$ to $3 + 1$ dimensions in an early universe with mutually BPS intersecting branes *(23 pages)* 083526
Samrat Bhowmick and S. Kalyana Rama

Gamma rays from ultracompact minihalos: Potential constraints on the primordial curvature perturbation *(5 pages)* 083527
Amandeep S. Josan and Anne M. Green

Observational cosmology using characteristic numerical relativity *(14 pages)* 084001
P. J. van der Walt and N. T. Bishop

(Continued)

PHYSICAL REVIEW D **THIRD SERIES, VOLUME 82, NUMBER 8** **D15 OCTOBER 2010**

Null energy condition and causality in Lifshitz holography *(13 pages)* 084002
Carlos Hoyos and Peter Koroteev

Long life of Gauss-Bonnet corrected black holes *(12 pages)* 084003
R. A. Konoplya and A. Zhidenko

Gauss-Codazzi thermodynamics on the timelike screen *(5 pages)* 084004
Federico Piazza

Charged annular disks and Reissner-Nordström type black holes from extremal dust *(13 pages)* 084005
F. D. Lora-Clavijo, P. A. Ospina-Henao, and J. F. Pedraza

Dynamical evolution of a scalar field coupling to Einstein's tensor in the Reissner-Nordström black hole spacetime *(7 pages)* 084006
Songbai Chen and Jiliang Jing

Dynamics of generalized Palatini theories of gravity *(6 pages)* 084007
Vincenzo Vitagliano, Thomas P. Sotiriou, and Stefano Liberati

State-space correlations and stabilities *(33 pages)* 084008
Stefano Bellucci and Bhupendra Nath Tiwari

Thermodynamic black di-rings *(11 pages)* 084009
Hideo Iguchi and Takashi Mishima

Gravitational perturbations and metric reconstruction: Method of extended homogeneous solutions applied to eccentric orbits on a Schwarzschild black hole *(21 pages)* 084010
Seth Hopper and Charles R. Evans

Low energy quantum gravity from the effective average action *(11 pages)* 084011
A. Satz, A. Codello, and F. D. Mazzitelli

Hybrid quantization: From Bianchi I to the Gowdy model *(11 pages)* 084012
Mercedes Martín-Benito, Guillermo A. Mena Marugán, and Edward Wilson-Ewing

Gravitational radiation from a spinning compact object around a supermassive Kerr black hole in circular orbit *(11 pages)* 084013
Wen-Biao Han

Nonadiabatic charged spherical evolution in the postquasistatic approximation *(11 pages)* 084014
L. Rosales, W. Barreto, C. Peralta, and B. Rodríguez-Mueller

Isotropic and anisotropic bouncing cosmologies in Palatini gravity *(15 pages)* 084015
Carlos Barragán and Gonzalo J. Olmo

Quantum singularities in (2 + 1) dimensional matter coupled black hole spacetimes *(8 pages)* 084016
O. Unver and O. Gurtug

$SL(2, C)$ gravity on noncommutative space with Poisson structure *(7 pages)* 084017
Yan-Gang Miao and Shao-Jun Zhang

Reflection and transmission at the apparent horizon during gravitational collapse *(9 pages)* 084018
Cenalo Vaz and L. C. Wijewardhana

Extended Green-Liouville asymptotics and vacuum polarization for lukewarm black holes *(19 pages)* 084019
Cormac Breen and Adrian C. Ottewill

Improved time-domain accuracy standards for model gravitational waveforms *(10 pages)* 084020
Lee Lindblom, John G. Baker, and Benjamin J. Owen

Modifications to Lorentz invariant dispersion in relatively boosted frames *(11 pages)* 084021
Uri Jacob, Flavio Mercati, Giovanni Amelino-Camelia, and Tsvi Piran

Rotating boson stars in five dimensions *(12 pages)* 084022
Betti Hartmann, Burkhard Kleihaus, Jutta Kunz, and Meike List

Thin-shell wormholes in d-dimensional general relativity: Solutions, properties, and stability *(13 pages)* 084023
Gonçalo A. Dias and José P. Lemos

Saturating the holographic entropy bound *(17 pages)* 084024
Raphael Bousso, Ben Freivogel, and Stefan Leichenauer

Bound states for neutral particles in a rotating frame in the cosmic string spacetime *(7 pages)* 084025
Knut Bakke and C. Furtado

Superradiant scattering of electromagnetic waves emitted from disk around Kerr black holes *(11 pages)* 084026
Taichi Kobayashi and Akira Tomimatsu

(Continued)

PHYSICAL REVIEW D **THIRD SERIES, VOLUME 82, NUMBER 8** **D15 OCTOBER 2010**

Magnetic fields generated by r-modes in accreting millisecond pulsars *(8 pages)* 084027
Carmine Cuofano and Alessandro Drago

Multimetric extension of the parametrized post-Newtonian formalism: Experimental consistency of repulsive gravity *(10 pages)* 084028
Manuel Hohmann and Mattias N. Wohlfarth

Detailed black hole state counting in loop quantum gravity *(31 pages)* 084029
Ivan Agullo, J. Fernando Barbero G., Enrique F. Borja, Jacobo Diaz-Polo, and Eduardo J. Villaseñor

Effects of the variation of mass on fermion localization and resonances on thick branes *(10 pages)* 084030
Zhen-Hua Zhao, Yu-Xiao Liu, Hai-Tao Li, and Yong-Qiang Wang

Relativistic magnetohydrodynamics in dynamical spacetimes: A new adaptive mesh refinement implementation *(21 pages)* 084031
Zachariah B. Etienne, Yuk Tung Liu, and Stuart L. Shapiro

No-dipole-hair theorem for higher-dimensional static black holes *(5 pages)* 084032
Roberto Emparan, Seiju Ohashi, and Tetsuya Shiromizu

Equivalence principle violations and couplings of a light dilaton *(20 pages)* 084033
Thibault Damour and John F. Donoghue

Motion of charged particles near a weakly magnetized Schwarzschild black hole *(12 pages)* 084034
Valeri P. Frolov and Andrey A. Shoom

Towards spinfoam cosmology *(8 pages)* 084035
Eugenio Bianchi, Carlo Rovelli, and Francesca Vidotto

Precession effect of the gravitational self-force in a Schwarzschild spacetime and the effective one-body formalism *(21 pages)* 084036
Leor Barack, Thibault Damour, and Norichika Sago

Quasinormal modes and Regge poles of the canonical acoustic hole *(8 pages)* 084037
Sam R. Dolan, Leandro A. Oliveira, and Luís C. Crispino

Positioning in a flat two-dimensional space-time: The delay master equation *(15 pages)* 084038
Bartolomé Coll, Joan Josep Ferrando, and Juan Antonio Morales-Lladosa

Brans-Dicke cylindrical wormholes *(8 pages)* 084039
Ernesto F. Eiroa and Claudio Simeone

Twisted geometries: A geometric parametrization of SU(2) phase space *(16 pages)* 084040
Laurent Freidel and Simone Speziale

Twistors to twisted geometries *(5 pages)* 084041
Laurent Freidel and Simone Speziale

New massive gravity extended with an arbitrary number of curvature corrections *(4 pages)* 084042
Miguel F. Paulos

Testing approximations of thermal effects in neutron star merger simulations *(10 pages)* 084043
A. Bauswein, H.-T. Janka, and R. Oechslin

Quasilocal Hamiltonians in general relativity *(6 pages)* 084044
Michael T. Anderson

Lattice Wess-Zumino model with Ginsparg-Wilson fermions: One-loop results and GPU benchmarks *(18 pages)* 085001
Chen Chen, Eric Dzienkowski, and Joel Giedt

Some chirality-related properties of the 4D massive Dirac propagator and determinant in an arbitrary gauge field *(8 pages)* 085002
Jin Hur, Choonkyu Lee, and Hyunsoo Min

Two-dimensional $\mathcal{N} = (2, 2)$ Wess-Zumino model in the functional renormalization group approach *(12 pages)* 085003
Franziska Synatschke-Czerwonka, Thomas Fischbacher, and Georg Bergner

Complete Calabi-Yau metrics from Kahler metrics in $D = 4$ *(10 pages)* 085004
Mauricio Leston and Osvaldo P. Santillan

Cancellation of 4-derivative terms in Volkov-Akulov action *(8 pages)* 085005
A. A. Zheltukhin

Renormalization group and conformal symmetry breaking in the Chern-Simons theory coupled to matter *(15 pages)* 085006
A. G. Dias and A. F. Ferrari

(Continued)

PHYSICAL REVIEW D **THIRD SERIES, VOLUME 82, NUMBER 8** **D15 OCTOBER 2010**

Bulk viscosity of spin-one color superconducting strange quark matter *(10 pages)* 085007
Xinyang Wang and Igor A. Shovkovy

Vacuum polarization from confined fermions in 3 + 1 dimensions *(5 pages)* 085008
C. Ccapa Ttira, C. D. Fosco, and E. Losada

Casimir effect of the electromagnetic field in D-dimensional spherically symmetric cavities *(17 pages)* 085009
L. P. Teo

Charge orbits of extremal black holes in five-dimensional supergravity *(35 pages)* 085010
Bianca L. Cerchiai, Sergio Ferrara, Alessio Marrani, and Bruno Zumino

Superconductivity of QCD vacuum in strong magnetic field *(17 pages)* 085011
M. N. Chernodub

Asymptotic approach to special relativity compatible with a relativistic principle *(10 pages)* 085012
J. M. Carmona, J. L. Cortés, and D. Mazón

Nonperturbative tests for asymptotic freedom in the $\mathcal{PT}$-symmetric $(-\phi^4)_{3+1}$ theory *(8 pages)* 085013
Abouzeid Shalaby and Suleiman S. Al-Thoyaib

$\mathcal{N} = 4$, 3D supersymmetric quantum mechanics in a non-Abelian monopole background *(8 pages)* 085014
Evgeny Ivanov and Maxim Konyushikhin

BPS Skyrme model and baryons at large N_c *(13 pages)* 085015
C. Adam, J. Sánchez-Guillén, and A. Wereszczyński

Superstatistics approach to path integral for a relativistic particle *(14 pages)* 085016
Petr Jizba and Hagen Kleinert

Gauge theories under incorporation of a generalized uncertainty principle *(12 pages)* 085017
Martin Kober

UV fixed-point structure of the three-dimensional Thirring model *(11 pages)* 085018
Holger Gies and Lukas Janssen

Ginsparg-Wilson relation on a fuzzy 2-sphere for adjoint matter *(12 pages)* 085019
Hajime Aoki

Yukawa terms in noncommutative SO(10) and E_6 GUTs *(7 pages)* 085020
C. P. Martín

Gravitational waves in the spectral action of noncommutative geometry *(14 pages)* 085021
William Nelson, Joseph Ochoa, and Mairi Sakellariadou

Supersymmetric musings on the predictivity of family symmetries *(11 pages)* 085022
Kenji Kadota, Jörn Kersten, and Liliana Velasco-Sevilla

Exact solutions for a Maxwell-Kalb-Ramond action with dilaton: Localization of massless and massive modes in a sine-Gordon brane-world *(15 pages)* 085023
H. R. Christiansen, M. S. Cunha, and M. O. Tahim

Asymptotically anomalous black hole configurations in gravitating nonlinear electrodynamics *(11 pages)* 085024
J. Diaz-Alonso and D. Rubiera-Garcia

Multiangle simulation of flavor evolution in the neutronization neutrino burst from an O-Ne-Mg core-collapse supernova *(10 pages)* 085025
John F. Cherry, George M. Fuller, J. Carlson, Huaiyu Duan, and Yong-Zhong Qian

Asymmetry of the dimension-two gluon condensate: The finite temperature case *(7 pages)* 085026
David Vercauteren and Henri Verschelde

Symmetry constraints on generalizations of Bjorken flow *(11 pages)* 085027
Steven S. Gubser

Finite temperature solitons in nonlocal field theories from p-adic strings *(8 pages)* 085028
Tirthabir Biswas, Jose A. Cembranos, and Joseph I. Kapusta

Extreme charged black holes in a braneworld with a cosmological constant *(12 pages)* 085029
Ryotaku Suzuki, Tetsuya Shiromizu, and Norihiro Tanahashi

Nonsupersymmetric strong coupling background from the large N quantum mechanics of two matrices coupled via a Yang-Mills interaction *(8 pages)* 085030
João P. Rodrigues and Alia Zaidi

(Continued)

PHYSICAL REVIEW D THIRD SERIES, VOLUME 82, NUMBER 8 D15 OCTOBER 2010

Massive scaling limit of the β-deformed matrix model of Selberg type *(10 pages)* 085031
H. Itoyama, T. Oota, and N. Yonezawa

Alternative refined Gribov-Zwanziger Lagrangian *(21 pages)* 085032
J. A. Gracey

Fermionic current densities induced by magnetic flux in a conical space with a circular boundary *(22 pages)* 085033
E. R. Bezerra de Mello, V. B. Bezerra, A. A. Saharian, and V. M. Bardeghyan

Holographic fractional topological insulators *(4 pages)* 086001
Carlos Hoyos, Kristan Jensen, and Andreas Karch

Cosmological intersecting brane solutions *(30 pages)* 086002
Masato Minamitsuji, Nobuyoshi Ohta, and Kunihito Uzawa

Stability of holographic superconductors *(10 pages)* 086003
Sugumi Kanno and Jiro Soda

Looking for a Matrix model for ABJM theory *(24 pages)* 086004
Asadig Mohammed, Jeff Murugan, and Horatiu Nastase

Hidden conformal symmetry of rotating black holes in minimal five-dimensional gauged supergravity *(6 pages)* 086005
M. R. Setare and V. Kamali

Anisotropic Kantowski-Sachs universe from gravitational tunneling and its observational signatures *(17 pages)* 086006
Julian Adamek, David Campo, and Jens C. Niemeyer

String in Hořava-Lifshitz gravity *(10 pages)* 086007
J. Klusoň

Remarks on decay of defects with internal degrees of freedom *(6 pages)* 086008
A. Gorsky and M. B. Voloshin

Abelian gauge symmetries and proton decay in global *F*-theory GUTs *(17 pages)* 086009
Thomas W. Grimm and Timo Weigand

From soft walls to infrared branes *(8 pages)* 086010
Gero von Gersdorff

Improved soft-wall model with a negative dilaton *(5 pages)* 086011
Fen Zuo

Nonlocal and mixed condensates tests of gauge/string duality *(6 pages)* 086012
Oleg Andreev

Quantum phase transition in a Dp-Dq system *(19 pages)* 086013
Shesansu Sekhar Pal

Topological insulators and superconductors from string theory *(15 pages)* 086014
Shinsei Ryu and Tadashi Takayanagi

Bubbles of nothing in flux compactifications *(8 pages)* 086015
Jose J. Blanco-Pillado and Benjamin Shlaer

BRIEF REPORTS

Macroscopic quantum tunneling and the "cosmic" Josephson effect *(4 pages)* 087301
A. Barone, M. Gasperini, and G. Rotoli

CMB neutrino mass bounds and reionization *(4 pages)* 087302
Maria Archidiacono, Asantha Cooray, Alessandro Melchiorri, and Stefania Pandolfi

Primordial black holes and a large hidden sector *(3 pages)* 087501
Xavier Calmet

Domain walls in Einstein-Gauss-Bonnet bulk *(4 pages)* 087502
S. Habib Mazharimousavi and M. Halilsoy

Duality-symmetric supersymmetric Yang-Mills theory in three dimensions *(4 pages)* 087701
Hitoshi Nishino and Subhash Rajpoot

Remarks on the identities of gluon tree amplitudes *(4 pages)* 087702
S.-H. Henry Tye and Yang Zhang

(Continued)

PHYSICAL REVIEW D **THIRD SERIES, VOLUME 82, NUMBER 8** **D15 OCTOBER 2010**

ERRATA

Erratum: Massive neutrinos in cosmology: Analytic solutions and fluid approximation [Phys. Rev. D **81**, 123516 (2010)] *(1 page)* . . . . . 089901(E)
Masatoshi Shoji and Eiichiro Komatsu