# PHYSICAL REVIEW D

**For editorial and subscription correspondence, please see inside front cover**
**(ISSN: 0556-2821)**

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

**THIRD SERIES, VOLUME 69, NUMBER 4** *CONTENTS* **D15 FEBRUARY 2004**

## RAPID COMMUNICATIONS

Onset of the nonlinear regime in unified dark matter models *(5 pages)* . . . . . 041301(R)
P. P. Avelino, L. M. G. Beça, J. P. M. de Carvalho, C. J. A. P. Martins, and E. J. Copeland

Correspondence between *n*- and *m*-dimensional inflationary cosmologies *(5 pages)* . . . . . 041302(R)
Alberto A. García, Alberto García-Quiroz, Mauricio Cataldo, and Sergio del Campo

Unphysical nature of the SL(2,$\mathbb{R}$) symmetry and its associated condensates in Yang-Mills theories *(5 pages)* . . . . . 041701(R)
Mboyo Esole and Filipe Freire

## ARTICLES

Deflection of spacecraft trajectories as a new test of general relativity: Determining the parametrized post-Newtonian parameters $\beta$ and $\gamma$ *(15 pages)* . . . . . 042001
James M. Longuski, Ephraim Fischbach, Daniel J. Scheeres, Giacomo Giampieri, and Ryan S. Park

Variational description of multifluid hydrodynamics: Uncharged fluids *(20 pages)* . . . . . 043001
Reinhard Prix

Non-Gaussian signatures in the lens deformations of the CMB Sky: A new ray-tracing procedure *(14 pages)* . . . . . 043002
P. Cerdá-Durán, V. Quilis, and D. Sáez

Cosmic microwave background constraints on lens spaces *(4 pages)* . . . . . 043003
Jean-Philippe Uzan, Alain Riazuelo, Roland Lehoucq, and Jeffrey Weeks

Principal power of the CMB *(10 pages)* . . . . . 043004
Wayne Hu and Takemi Okamoto

Gravitational lensing as a contaminant of the gravity wave signal in the CMB *(6 pages)* . . . . . 043005
Uroš Seljak and Christopher M. Hirata

Observability of gamma rays from neutralino annihilations in the Milky Way substructure *(11 pages)* . . . . . 043501
Savvas M. Koushiappas, Andrew R. Zentner, and Terrence P. Walker

Formation of a galaxy with a central black hole in the Lemaître-Tolman model *(19 pages)* . . . . . 043502
Andrzej Krasiński and Charles Hellaby

Non-Gaussianity in the curvaton scenario *(7 pages)* . . . . . 043503
N. Bartolo, S. Matarrese, and A. Riotto

Novel approach to the study of quantum effects in the early Universe *(10 pages)* . . . . . 043504
A. Geralico, G. Landolfi, G. Ruggeri, and G. Soliani

Expanding cosmologies in brane geometries *(4 pages)* . . . . . 043505
Myron Bander

Inflation from supersymmetric quantum cosmology *(6 pages)* . . . . . 043506
W. Guzmán, J. Socorro, V. I. Tkach, and J. Torres




**Copyright 2004 by The American Physical Society**




*(Continued)*

**PHYSICAL REVIEW D** **THIRD SERIES, VOLUME 69, NUMBER 4** **D15 FEBRUARY 2004**

Large-scale magnetic fields from inflation in dilaton electromagnetism *(15 pages)* . . . . . 043507
Kazuharu Bamba and J. Yokoyama
Non-Gaussianities in models with a varying inflaton decay rate *(7 pages)* . . . . . 043508
Matias Zaldarriaga
Nature of branon dark matter *(5 pages)* . . . . . 043509
A. L. Maroto
Reconstruction of field theory from excitation spectra of defects *(9 pages)* . . . . . 043510
Tanmay Vachaspati
D-braneworld cosmology. II. Higher order corrections *(6 pages)* . . . . . 043511
Tomoko Uesugi, Tetsuya Shiromizu, Takashi Torii, and Keitaro Takahashi
Dark matter annihilation in the local group *(11 pages)* . . . . . 043512
Lidia Pieri and Enzo Branchini
Formation of domain wall lattices *(7 pages)* . . . . . 043513
Nuno D. Antunes, Levon Pogosian, and Tanmay Vachaspati
2+1 gravity and doubly special relativity *(7 pages)* . . . . . 044001
Laurent Freidel, Jerzy Kowalski-Glikman, and Lee Smolin
Spherical dust collapse in higher dimensions *(9 pages)* . . . . . 044002
Rituparno Goswami and Pankaj S. Joshi
Multidimensional cosmological models: Cosmological and astrophysical implications and constraints *(12 pages)* . . . . . 044003
U. Günther, A. Starobinsky, and A. Zhuk
Quasinormal modes of Schwarzschild black holes in four and higher dimensions *(12 pages)* . . . . . 044004
Vitor Cardoso, José P. S. Lemos, and Shijun Yoshida
Differentiating between modified gravity and dark energy *(9 pages)* . . . . . 044005
Arthur Lue, Román Scoccimarro, and Glenn Starkman
Maximal slicing for puncture evolutions of Schwarzschild and Reissner-Nordström black holes *(21 pages)* . . . . . 044006
Bernd Reimann and Bernd Brügmann
Gravitational radiation from gamma-ray burst-supernovae as observational opportunities for LIGO and VIRGO *(21 pages)* . . . . . 044007
Maurice H. P. M. van Putten, Amir Levinson, Hyun Kyu Lee, Tania Regimbau, Michele Punturo, and Gregory M. Harry
Two-dimensional quantum-corrected black hole in a finite size cavity *(8 pages)* . . . . . 044008
O. B. Zaslavskii
Magnetic braking in differentially rotating, relativistic stars *(27 pages)* . . . . . 044009
Yuk Tung Liu and Stuart L. Shapiro
Area spectrum and quasinormal modes of black holes *(5 pages)* . . . . . 044010
Alexios P. Polychronakos
Orbital evolution of a test particle around a black hole. II. Comparison of contributions of spin-orbit coupling and the self-force *(10 pages)* . . . . . 044011
Lior M. Burko
Spectrum of quantum black holes and quasinormal modes *(6 pages)* . . . . . 044012
Jonathan Oppenheim
Exact general relativistic thick disks *(10 pages)* . . . . . 044013
Guillermo A. González and Patricio S. Letelier
Fat gravitons, the cosmological constant and submillimeter tests *(15 pages)* . . . . . 044014
Raman Sundrum
Rotating black hole orbit functionals in the frequency domain *(11 pages)* . . . . . 044015
Steve Drasco and Scott A. Hughes

*(Continued)*

**PHYSICAL REVIEW D** **THIRD SERIES, VOLUME 69, NUMBER 4** **D15 FEBRUARY 2004**

Area spectrum of extremal Reissner-Nordström black holes from quasinormal modes *(3 pages)* ..... 044016
M. R. Setare
Time uncertainty in quantum gravitational systems *(4 pages)* ..... 044017
J. Fernando Barbero G., Guillermo A. Mena Marugán, and Eduardo J. S. Villaseñor
Properties of global monopoles with an event horizon *(5 pages)* ..... 044018
Takashi Tamaki and Nobuyuki Sakai
Entropy of a Kerr–de Sitter black hole due to arbitrary spin fields *(14 pages)* ..... 044019
Shuang-Qing Wu and Mu-Lin Yan
Spherical excision for moving black holes and summation by parts for axisymmetric systems *(21 pages)* .... 044020
Gioel Calabrese and David Neilsen
Can inflating braneworlds be stabilized? *(7 pages)* ..... 044021
Andrei V. Frolov and Lev Kofman
Cosmological black holes on branes *(8 pages)* ..... 044022
Marek Rogatko
Stress-energy tensor for a quantized bulk scalar field in the Randall-Sundrum brane model *(7 pages)* ..... 044023
A. Knapman and D. J. Toms
Horizonless rotating solutions in $(n+1)$-dimensional Einstein-Maxwell gravity *(7 pages)* ..... 044024
M. H. Dehghani
Gravitational waveforms from a point particle orbiting a Schwarzschild black hole *(20 pages)* ..... 044025
Karl Martel
Chameleon cosmology *(15 pages)* ..... 044026
Justin Khoury and Amanda Weltman
Class of exact solutions of the Faddeev model *(10 pages)* ..... 045001
Minoru Hirayama and Chang-Guang Shi
Dressing up the kink *(6 pages)* ..... 045002
Yoav Bergner and Luís M. A. Bettencourt
Approach to thermalization in the classical $\phi^4$ theory in $1+1$ dimensions: Energy cascades and universal scaling *(39 pages)* ..... 045003
D. Boyanovsky, C. Destri, and H. J. de Vega
Cosmological bounds on large extra dimensions from nonthermal production of Kaluza-Klein modes *(9 pages)* ..... 045004
Rouzbeh Allahverdi, Chris Bird, Stefan Groot Nibbelink, and Maxim Pospelov
Inflating magnetically charged braneworlds *(15 pages)* ..... 045005
Inyong Cho and Alexander Vilenkin
Electron thermal propagator at $p \gg T$: An entire function of $p_0$ *(8 pages)* ..... 045006
H. Arthur Weldon
Color superconductivity, $Z_N$ flux tubes, and monopole confinement in deformed $\mathcal{N}=2^*$ super Yang-Mills theories *(10 pages)* ..... 045007
Marco A. C. Kneipp
Chiral fermion mass and dispersion relations at finite temperature in the presence of hypermagnetic fields *(11 pages)* ..... 045008
Alejandro Ayala, Adnan Bashir, and Sarira Sahu
Renormalized nonperturbative fermion model in covariant light-front dynamics *(29 pages)* ..... 045009
V. A. Karmanov, J.-F. Mathiot, and A. V. Smirnov
$O(10)$ kinks: Clash of symmetries on the brane and the gauge hierarchy problem *(9 pages)* ..... 045010
Edward M. Shin and Raymond R. Volkas
Effect of color superconductivity on the mass and radius of a quark star *(12 pages)* ..... 045011
Stefan B. Rüster and Dirk H. Rischke
Self-consistent bounce: An improved nucleation rate *(12 pages)* ..... 045012
Yoav Bergner and Luís M. A. Bettencourt

*(Continued)*

**PHYSICAL REVIEW D** **THIRD SERIES, VOLUME 69, NUMBER 4** **D15 FEBRUARY 2004**

Hamiltonian BRST quantization of a noncommutative non-Abelian gauge theory and its Seiberg-Witten map *(9 pages)* . . . . . 045013
Ricardo Amorim and Franz A. Farias
New optimization methods for converging perturbative series with a field cutoff *(9 pages)* . . . . . 045014
B. Kessler, L. Li, and Y. Meurice
Transmutation of scale dependence into truncation uncertainty via renormalization-group improvement of the $R(s)$ series *(5 pages)* . . . . . 045015
V. Elias, D. G. C. McKeon, and T. G. Steele
Embedding commutative and noncommutative theories in the symplectic framework *(13 pages)* . . . . . 045016
C. Neves, W. Oliveira, D. C. Rodrigues, and C. Wotzasek
Localization of heterotic anomalies on various hypersurfaces of $T^6/\mathbb{Z}_4$ *(18 pages)* . . . . . 046001
Stefan Groot Nibbelink, Mark Hillenbach, Tatsuo Kobayashi, and Martin G. A. Walter
Hidden symmetries of the $AdS_5 \times S^5$ superstring *(7 pages)* . . . . . 046002
Iosif Bena, Joseph Polchinski, and Radu Roiban
Penrose limits, *pp* waves, and deformed M2-branes *(10 pages)* . . . . . 046003
M. Cvetič, H. Lü, and C. N. Pope
Inflationary cosmology with five dimensional $SO(10)$ *(8 pages)* . . . . . 046004
Bumseok Kyae and Qaisar Shafi
Understanding the strong coupling limit of the $\mathcal{N}=4$ supersymmetric Yang-Mills theory at finite temperature *(13 pages)* . . . . . 046005
Edward Shuryak and Ismail Zahed

## BRIEF REPORTS

Addendum to ''Coherent radio pulses from GEANT generated electromagnetic showers in ice'' *(4 pages)* . . . . 047101
Soebur Razzaque, Surujhdeo Seunarine, Scott W. Chambers, David Z. Besson, Douglas W. McKay, John P. Ralston, and David Seckel
Toward making the constraint hypersurface an attractor in free evolution *(4 pages)* . . . . . 047501
David R. Fiske
Effective action for brane localized gauge fields *(4 pages)* . . . . . 047701
T. E. Clark, Muneto Nitta, and T. ter Veldhuis
Note on self-duality and the Kodama state *(4 pages)* . . . . . 047702
Alejandro Corichi and Jerónimo Cortez

## ERRATA

Erratum: Rotating black holes at future colliders: Greybody factors for brane fields [Phys. Rev. D **67**, 064025 (2003)] *(1 page)* . . . . . 049901(E)
Daisuke Ida, Kin-ya Oda, and Seong Chan Park

**Cumulative Author Index** . . . . . i