

LISTA ARTICOLELOR PUBLICATE
IN CADRUL
PROIECTULUI COMISIS

Coordonator: CO - UVT

Articole ISI

1. C.A. Sporea, **D.N. Vulcnov**, "Using Maple + GRTensorII in teaching basics of General Relativity and Cosmology", Rom. Rep. Phys. **68**, 29 (2016).
2. I.I. Cotaescu, C. Crucean and C.A. Sporea, "Partial wave analysis of the Dirac fermions scattered from Reissner - Nordstrom charged black holes", Eur. Phys. J. C (2016), **76**:413
3. C. Crucean and M.A. Baloi, " Fermion production in a magnetic field in a de Sitter universe", Phys. Rev. D, Vol. **93**, No. 4 (2016) 044070.
4. I.I. Cotaescu, D.M. Baltateanu and I. Cotaescu Jr., "Relativistic persistent currents in ideal Aharonov-Bohm cylinders", Int. J. Mod. Phys. B, Vol. **30**, (2016) 1650190.
5. I.I. Cotaescu, C. Crucean and C.A. Sporea, "Partial wave analysis of the Dirac fermions scattered from Schwarzschild black holes", Eur. Phys. J. C (2016), **76**:102;
6. C.A. Sporea, A. Borowiec, "Low energy Greybody factors for fermions emitted by a Schwarzschild-de Sitter black hole", Int. J. Mod. Phys. D, Vol. **25**, No. 4 (2016) 1650043.
7. I.I. Cotaescu, D.M. Baltateanu and I. Cotaescu Jr., "Relativistic persistent currents in ideal Aharonov-Bohm rings", Int. J. Mod. Phys. B, Vol. **30**, No. 1 (2016) 1550245.
8. [Ion I. Cotaescu](#), [Doru-Marcel Baltateanu](#), "Isometry generators in momentum representation of the Dirac theory on the de Sitter spacetime", Mod. Phys. Lett. A. Vol. 30, No. 38 (2015) 1550208.
9. I. I. Cotaescu, "Acceleration in de Sitter spacetime", EPL **109** (2015) 40002.
10. C.Crucean and M-A.Baloi, "Interaction between Maxwell field and charged scalar field in de Sitter universe", Int.J.Mod. Phys A 30, (2015).
11. Ciprian A. Sporea, "New Modes for massive Dirac field in higher dimensional Black Holes", Mod. Phys. Lett. A, **30**, 1550145 (2015).

Prezentari orale/poster la conferinte internationale & arXiv preprints

1. Dumitru N. Vulcanov, "Computational methods in the study of the geodesic movement of particles in gravitational fields", *The Joint Meeting on Quantum Fields and Nonlinear Phenomena*, 9 - 13 March 2016, Sinaia (Romania).
2. I.I. Cotaescu, "Isometry generators and canonical quantization on de Sitter spacetimes", *The Joint Meeting on Quantum Fields and Nonlinear Phenomena*, 9 - 13 March 2016, Sinaia (Romania).
3. I.I. Cotaescu, C. Crucean and C.A. Sporea, "Fermion Scattering on Reissner-Nodstrom charged black holes", *The Joint Meeting on Quantum Fields and Nonlinear Phenomena*, 9 - 13 March 2016, Sinaia (Romania).
4. I.I. Cotaescu, "On the de Sitter tardyons and tachyons", *International Conference on p-ADIC MATHEMATICAL PHYSICS AND ITS APPLICATIONS p-ADICS.2015*, 07-12.09.2015, Belgrade, Serbia.
5. C. A. Sporea, Andrzej Borowiec, "Low energy Greybody factors for fermions emitted by a Schwarzschild-de Sitter Black Hole", poster prezentat la *seminarul "600 WE-Heraeus-Seminar on 'Frontiers of Quantum Optics'"*, 25-30 Octombrie 2015, Bad Honnef (Germania).
6. Ion I. Cotaescu, C. Crucean, C. A. Sporea, "Scattering of massive fermions on Schwarzschild black holes", prezentare sustinuta la "*20th International Summer School on Global Analysis and its Applications – General Relativity: 100 years after Hilbert*", 16-22 August 2015, Stara Lesna (Slovakia).
7. Ion I. Cotaescu, C. Crucean, C. A. Sporea, "The scattering of Dirac fermions on Schwarzschild black holes - a partial wave analysis approach", prezentare sustinuta la conferinta "*The Plank scale II*", 07-12 Septembrie 2015, Wroclaw (Polonia).
8. Dumitru N. Vulcanov -Geodesic movement of particles in gravitational fields - in pregatire: from symbolic computation to numerical simulations
9. I.I. Cotaescu, "On the de Sitter tardyons and tachyons", arXiv:1508.05607
10. C. A. Sporea, "Notes on f(R) theories of gravity", [arXiv:1403.3852](https://arxiv.org/abs/1403.3852)
11. Ion I. Cotaescu, C. Crucean, C. A. Sporea, "Elastic scattering of Dirac fermions on Schwarzschild black holes", talk presented at „*The Joint Meeting on Quantum Field Theory and Nonlinear Dynamics*”, 24-28 September 2014, Sinaia, Romania.
12. Ion Cotaescu, "Covariant representations of the de Sitter isometry group", talk presented at "*The Joint Meeting on Quantum Field Theory and Nonlinear Dynamics*", 24-28 September 2014, Sinaia, Romania.
13. Ion I. Cotaescu, C. Crucean, C. A. Sporea, "Scattering of Dirac fermions in Schwarzschild geometry", talk presented at *TIM-14 Physics Conference – Physics without frontiers*, 20–22 November 2014, Timisoara, Romania.

Partener 1: P1 - UCV

Articole ISI

1. R. Cimpoiasu, *Generalized conditional symmetries and related solutions of the Grad-Shafranov equation*, Physics of Plasmas, vol. 21, no. 4, 2014.
2. R. Cimpoiasu, *Symmetry reductions and new wave solutions for the 2D Burgers-Korteweg-Devries*, Rom. Journ. Phys., vol. 59, no. 7-8, pp. 617-624, 2014.
3. R. Cimpoiasu, *On symmetry groups of a 2D nonlinear diffusion equation with source*, Pramana – J. Phys., 2014.
4. R. Cimpoiasu, R. Constantinescu, *Nonlinear self-adjointness and invariant solutions of a 2D Rossby wave equation*, Cent. Eur. J. Phys., vol. 12, no. 2, pp. 81-89, 2014.
5. M. Lungu, R. Lungu, *Design of Full-order Observers for Systems with Unknown Inputs by using the Eigenstructure Assignment*. Asian Journal of Control, vol. 16, no. 5, 1470-1481, 2014.
6. R. Cimpoiasu "On symmetry groups of a 2D nonlinear diffusion equation with source", *Pramana*, 4(84), 543-553 (2015).
7. Cimpoiasu, R. "Nerve pulse propagation in biological membranes: Solitons and other invariant solutions". International Journal of Biomathematics, vol. 9, no. 3, 2016, 1650075-1-1650075-13.
8. Constantinescu, R. "Generalized conditional symmetries and related solutions of the Klein-Gordon-Fock equation with central symmetry". Romanian J. Phys. 61 (2016): 77-88.
9. Lungu, R., Lungu, M., „Automatic Control of Aircraft in Lateral-Directional Plane During Landing”. Asian Journal of Control, vol. 18, nr. 3, pag. 433-446, 2016.

Articole BDI

1. C.N.Babalic, R.Constantinescu, V.Gerdjikov, *On Tzitzeica equation and spectral properties of related Lax operators*, Balkan Journal of Geometry and Its Applications”, vol.19, no.2, pp. 11-22, 2014.
2. R.Constantinescu, *Generalized conditional symmetries, related solutions and conservation laws of the Klein-Gordon-Fock equation with central symmetry*, 9-th Workshop “Quantum Field Theory and Hamiltonian Systems”, Sinaia, 24-28 Sept. 2014. *In curs de aparitie in Rom. J. Phys.*
3. R. Constantinescu, C.Ionescu, E.Panaintescu, I.Petrisor, *Techniques for chaos control in nonlinear electronic circuits*. TIM’14 Physics Conference – Physics without frontiers 22-23 nov. 2014, Timisoara, Romania. *In curs de aparitie in AIP Proc.*
4. M. Lungu, R. Lungu, *State Estimation of the Controlled Generic Reentry Vehicles via Multiple Observer*. 16th IEEE International Conference on Mechatronics – Mechatronika 2014 (3-5 Decembrie 2014, Brno, Cehia.
5. C.R. Boldea, A.L. Boldea, *On the solvability and the associated integrable hierarchy of the Gross-Pitaevskii equation*. 9-th Workshop “Quantum Field Theory and Hamiltonian Systems”, Sinaia, 24-28 Sept. 2014. *In curs de aparitie in Rom.J.Phys.*
6. C.R. Boldea, A.L. Boldea, *A study of the symmetries of the dispersive Klein-Gordon equation from cosmology*. TIM’14 Physics Conference – Physics without frontiers 22-23 nov. 2014,

Timisoara, Romania.

7. C.N. Babalic, R.Constantinescu, V.S.Gerdjikov, *On the soliton solutions of a family of Tzitzeica equations*, J. of Geometry and Symmetry in Physics, vol. 36, pp. 1-24, 2014.
8. Lungu, R., Lungu, M., Ioan, M., *“Determination and Control of the Satellites’ Attitude by using a Pyramidal Configuration of Four Control Moment Gyros”* 12th International Conference on Informatics in Control, Automation and Robotics (ICINCO 2015), Colmar, Franta, 21-23 Iulie 2015, pag. 448-456.
9. Lungu, R., Lungu, M., Ioan, M., *“Nonlinear Automatic Control of the Satellites by using the Quaternion and the Angular Velocities’ Vectors”* 3rd International Workshop on Numerical Modelling in Aerospace Sciences (NMAAS 2015), București, 6-7 Mai 2015.
10. R.Constantinescu, C.Ionescu, E.Panaintescu, I.Petrisor , *“Control and optimization techniques for “jerk” type circuits”*, lucrarea a fost prezentata in cadrul Workshopului „Theoretical and computational methods in dynamical systems and fractal geometry”, Maribor 7-11.04.2015.
11. Boldea, A.L., Boldea, C.R., *“Waves Formation in the Cosmic Bose-einstein Condensation Model”*, The 15th International Balcan Workshop in Applied Physics Materials IBWAP 2015, Constanta, 2-4 Iulie 2015.
12. Cimpoiasu, R., Constantinescu, R., Streche, A. *Chaos and symmetry in mathematical neural flow models*. Bioinformatics Conference, Belgrade, 2016 (p. 99).
13. Lungu, M., Lungu, R., Ioan, M. „Automatic Control of the Satellites’ Attitude and Stored Energy using Inertial Wheels”. 17th International Carpathian Control Conference (ICCC 2016), Tatranská Lomnica, Slovak Republic, May 29 - June 1, 2016, pag. 455-460.
14. Cimpoiasu, R., Constantinescu, R. „Conservation laws and solutions of 2D Ricci flow in the solitonic sector”. The Joint Meeting on Quantum Fields and Nonlinear Phenomena. 9-13 martie 2016, Sinaia.
15. Cimpoiasu, R., Constantinescu, R. „First integrals and integrating factors for some NODEs through lambda-symmetries”. The Joint Meeting on Quantum Fields and Nonlinear Phenomena. 9-13 martie 2016, Sinaia.
16. Boldea, A., Predatu, M. „Light-curves of Near Earth Asteroids through computational methods”. The Joint Meeting on Quantum Fields and Nonlinear Phenomena. 9-13 martie 2016, Sinaia.
17. Ionescu, C., Stoicescu, M., Streche, A. „A special case of Chua system. Chaos and regular behavior”. The Joint Meeting on Quantum Fields and Nonlinear Phenomena. 9-13 martie 2016, Sinaia.

Partener 2: P2 - UBB

Articole ISI

1. B. Danila, A. Marcu, G. Mocanu, *“New statistical results on the optical IDV data of BL Lac S5 0716+714”*, , Research in Astronomy and Astrophysics, 2015, vol 15, no. 3
2. G.Mocanu, A. Pardi, N. Magyar, A. Marcu, *“Appearance of an accretion disk perturbed by fractional Brownian Motion density*, Monthly Notices of the Royal Astronomical Society, 2014, Vol 439, No. 4, p.3790-3797

3. T.Harko, C.S. Leung, G. Mocanu , “Generalized Langevin equation with colored noise description of the stochastic oscillations of accretion disks”, , European Physical Journal C 2014, (74) 2900
4. G.Mocanu, I. Rasa, „C0-semigroups associated with Markov operators”, Mediterranean Journal of Mathematics, acceptat DOI 10.1007/s00009-014-0497-8
5. T. Harko, P. Liang, S.-D. Liang, G. Mocanu “Testing the Bose-Einstein Condensate dark matter model at galactic cluster scale”, Journal of Cosmology and Astroparticle Physics, acceptat 2015, <http://iopscience.iop.org/1475-7516/page/Forthcoming%20articles>
6. G. Mocanu, “C0-semigroups generated by second order differential operators”, Annales Polonici Mathematici, 2015 acceptat
7. B. Danila, T. Harko, G. Mocanu, “Self Organized Criticality in a two dimensional Cellular Automaton model of a magnetic flux tube with background flow”, Monthly Notices of the Royal Academy, 453 (3): 2982-2991 (2015)
8. T. Harko, G. Mocanu, N. Stroia, “Self Organized Criticality in an one dimensional magnetized grid. Application to GRB X-ray afterglows”, Astrophysics and Space Science, 357 (2015), 1-9
9. B. Dănilă, T. Harko, Z. Kovacs, “Thin Accretion Disks around cold Bose-Einstein Condensate stars”, European Physical Journal C, (2015) 75 (5) 203
10. B. Dănilă, A. Marcu, G. Mocanu, “New statistical results on the optical IDV data of BL Lac S5 0716+714”, Research in Astronomy and Astrophysics, 15 (2015), No. 3, 327-332
11. I. Ballai, R. Oliver, M. Alexandrou-Dissipative instability in partially ionised prominence plasmas. *Astronomy & Astrophysics, Volume 577, id.A82, 8, 2015*
12. G. Mocanu, I. Rașa, “C0-semigroups associated with Markov operators”, Mediterranean Journal of Mathematics (2015), DOI 10.1007/s00009-014-0497-8
13. Magyar, N.; Van Doorselaere, T.; Marcu, A.” Numerical simulations of transverse oscillations in radiatively cooling coronal loops”, *Astronomy & Astrophysics, Volume 582, id.A117, 8 pp. DOI10.1051/0004-6361/201526287*
14. T. Harko, G. Mocanu – Electromagnetic radiation of charged particles in stochastic motion. *European Journal of Physics C, 76, 160 (2016)*
15. G. Mocanu – C0-semigroups generated by second order differential operators. *Annales Polonici Mathematici, 116.1 (2016)*
16. N. Gyenge, I. Ballai, T. Baranyi- Statistical study of spatio-temporal distribution of precursor solar flares associated with major flares, *MNRAS, Vol. 459 3532-3539, 2016*
17. T. Harko, A.Marcu, G. Mocanu - Radiation Emitted By A Charged Particle Undergoing Brownian Motion In A Magnetic Field (Accepted to be published in AIP 2017)

Prezentari orale/poster la conferinte internationale

Conferinta ZAC-2014

1. “Statistical results on observed optical Intra-Day Variability of BL Lac S5 0716+714”, Danila Bogdan, Mocanu Gabriela, Marcu Alexandru

2. “Numerical simulations of transverse coronal loop oscillations in cooling plasma”, Magyar Norbert, Marcu Alexandru, Mocanu Gabriela
3. “GPU-enabled simulations of stellar clustering with cold dark matter and scalar field dark matter”, Serban Ontanu-Craciun

Conferinta TIM 14, 15-16

1. “ Statistical analysis of the optical Intraday Variability of BI Lac S5 0716+714”, Gabriela Mocanu, Alexandru Marcu, Bogdan Danila
2. 15th International Conference on Applied Mathematics and Computer Science 2016, Cluj-Napoca, 5-7 Iulie, “Radiation of charged particles undergoing drift/diffusion”, autori: G. Mocanu, prezentare orala (acceptat)
3. TIM15-16 Physics Conference, Timisoara 26-28 Mai 2016, Prezentare orala “Radiation emitted by a charged particle undergoing Brownian motion in a magnetic field”, autor: G. Mocanu
4. TIM15-16 Physics Conference, Timisoara 26-28 Mai 2016, poster “2D Cellular Automaton model of a magnetic flux tube with background flow. Applications on GRB Afterglows”, autori: B. Danila, A. Marcu, G. Mocanu
5. TIM15-16 Physics Conference, Timisoara 26-28 Mai 2016, Prezentare orala, “Kelvin-Helmholtz instability in the solar partially ionised plasma structures”, autori: A. Marcu, B. Danila, G. Mocanu

Conferinte inrenationale

1. Marcel Grossmann Meeting, Roma, 12-18 iulie 2015. Poster: “MHD Cellular Automata Simulations: Applications to GRB X-Ray afterglows”, autori B. Dănilă, T. Harko, G. Mocanu
2. The 14th International Conference on Mathematics and its Applications, Timișoara, 05-07 nov. 2015. Prezentare orală: “C0-semigroups generated by second order differential operators Hormander representation - Applications in physics”, autor: G. Mocanu
3. American Astronomical Society, SPD meeting #47, id.#3.21, 2016, Boston, USA, Numerical simulations of transverse oscillations in radiatively cooling coronal loops Poster Authors: Magyar, Norbert; Van Doorselaere, Tom; Marcu, Alexandru,