Lista de lucrări

Lucrări ştiinţifice publicate

Cărţi (manuale, monografii, tratate, îndrumare etc.) publicate în ţară, la edituri recunoscute CNCSIS/CNCS.

Mátyás László, Elektromosság, mágnesség és optika – laboratóriumi jegyzet (Electricitate, magnetism și optică – note de laborator), Kolozsvári Egyetemi Kiadó - Presa Universitară Clujeană, Cluj-Napoca, 2018, nr total de pagini 146, ISBN 978-606-37-0411-6 .

Mátyás László, Termodinamika (Termodinamică), Kolozsvári Egyetemi Kiadó - Presa Universitară Clujeană, Cluj-Napoca, 2020, nr total de pagini 172, ISBN 978-606-37-0761-2 .

Capitole de cărţi publicate în străinătate

I.F. Barna and L. Mátyás

Understanding the Schrödinger Equation: Some [Non]Linear Perspectives
Editor: Valentino Simpao and Hunter Little
Nova Science Publisher, New York, 2020, nr de pagini totale 300.

Self-similar and Travelling-Wave Analysis of the Madelung Equations Obtained from the Free Schrödinger Equation (capitol) pp. 182 – 223.
ISBN: 978 153 6176629

Lucrări ştiinţifice publicate în reviste cotate ISI

1. Steliana Codreanu and László Mátyás, An Analytical Study of Bifurcations Generated by Some Iterated Function Systems, Chaos, Solitons and Fractals Vol.**10** (8), 1999, pp.1343-1348.
2. László Mátyás, Tamás Tél and Jürgen Vollmer, Thermodynamic cross effects from dynamical systems, Physical Review E **61** (4), 2000, pp. R3295-R3298.
3. László Mátyás Tamás Tél and Jürgen Vollmer, Multibaker map for thermodynamic cross effects in dynamical systems, Physical Review E **62** (1), 2000, pp.349-365.
4. Jürgen Vollmer, Tamás Tél and László Mátyás, Modeling Thermostating, Entropy Currents, and Cross Effects by Dynamical Systems, Journal of Statistical Physics Vol. **101**, (1/2), 2000, pp.79-105.
5. Tamás Tél, Jürgen Vollmer and László Mátyás, Shear flow viscous heating and entropy balance from dynamical systems, Europhys. Lett. **53** (4), 2001, pp.458-464.
6. László Mátyás Tamás Tél and Jürgen Vollmer, Multibaker map for shear flow and viscous heating, Physical Review E, Volume **64**, 2001, 056106 pp.1-11.
7. Jürgen Vollmer, László Mátyás and Tamás Tél, Escape-Rate Formalism, Decay to Steady States and Divergences in the Entropy-Production Rate, Journal of Statistical Physics, Vol. **109** (3/4), 2002) pp. 875-893.

8. Tamás Tél, Jürgen Vollmer and László Mátyás, Comments on the paper 'Particles maps, and irreversible thermodynamics' by E.G.D Cohen and L. Rondoni, Physica A 306 (2002) 117, Physica A **323**, 2003, pp.323-326.
9. László Mátyás, T Tél and J Vollmer, Coarse-grained entropy and information dimension of dynamical systems: The driven Lorentz gas, Phys Rev E **69**, 2004, 016205, pp.1-8.
10. László Mátyás and Rainer Klages, Irregular diffusion in the bouncing ball billiard, Physica D **187,** 2004, pp.165-183.

11. Rainer Klages, Imre F. Barna and László Mátyás, Spiral modes in the diffusion of a single granular particle on a vibrating surface, Physics Letters A **333** (2004) 79-84.
12. László Mátyás and Pierre Gaspard, Entropy production in diffusion-reaction systems: The reactive random Lorenz gas, Phys Rev E **71**, 2005, 036147 pp.1-10.
13. László Bencze, Radmila Milačič, Radojko Jaćimović, Dušan Žigon, L.Mátyás, Arkadij Popovič, Knudsen effusion mass spectrometric determination of thermodynamic data of liquid Al-Cu-Sn alloy,International Journal of Mass Spectrometry **289,** 2010, p.11-29
14. László Mátyás and Imre Ferenc Barna, Geometrical origin of chaoticity in the bouncing ball billiard, Chaos, Solitons & Fractals **44**, 2011, pp.1111-1116.
15. IF Barna and L Mátyás, Analytic solutions for the one-dymensional compressible Euler equation with heat conduction closed with different kind of equation of states, Miskolc Mathematical Notes 3, 2013, pp.785-799.
16. Robert Szép and László Mátyás, The role of regional atmospheric stability in high-PM10 concentration episodes in Miercurea Ciuc (Harghita), Carpathian Journal of Earth and Environmental Sciences **9,** (2014) pp. 241-250.
17. IF Barna and L Mátyás, Analytic solutions for the three-dimensional compressible Navier-Stokes equation, Fluid Dynamics Research 46**,** 2014, 055508, pp.1-10.
18. L Mátyás, E Neagu and A Vajda, Effects of periodic increase of prey population in a predator-prey model, Environmental Engineering and Management Journal **14,** 2015, pp.851-854.
19. I F Barna and L Mátyás, Analytic self-similar solutions of the Oberbeck-Boussinesq equations, Chaos, Solitons &Fractals **78,** 2015, pp.249-255.
20. R Szép , R Keresztes, L Mátyás, M Ghimpusan, Troposhperic Ozone Concenctrations - Seasonal and Daily Analysis and its Association with NO and NO_2 as a Function of NO_X în Ciuc Depression, Romania, Revista de Chimie **67**(2), 2016, pp.205-213.

21. I F Barna, M A Pocsai, S Lökös, L Mátyás, Rayleig-Bénard convection in generalized Oberbeck-Boussinesq system, Chaos, Solitons and Fractals **103**, 2017, pp.336-341.
22. I F Barna, M A Pocsai, L Mátyás, Self-Symilar Analysis of the Nonlinear Schrödinger Equation in the Madelung Form, Advances in Mathematical Physics, Volume 2018, 2018, Article ID 7087295, pp.1-5.
23. András Cs D, Mátyás L, Ráduly B, Salamon R V, Increasing the Prediction Effieciency of Hansen Solubility Parameters in Supercritical Fluids, Periodica Polytechnica Chemical Engineering **63** (2), 2019, pp.286-293.
24. Imre F. Barna, László Mátyás, and Mihály A. Pocsai, Self-similar analysis of a viscous heated Oberbeck-Boussinesq flow system, Fluid Dynamics Research **52**, 2020, 015515, pp.1-11.

25. I. F. Barna, G. Bognár, M. Guedda, K. Hriczó, and L. Mátyás, Analytic self-similar solutions of the Kardar-Parisi-Zhang interface growing equation with various noise term, Mathematical Modelling and Analysis **25**, 2020, pp.241-256.
26. I.F. Barna, L. Mátyás, Analytic solutions of a two-fluid hydrodynamic model, Mathematical Modelling and Analysis **26,** 2021, pp.582-590.
27. László Mátyás, I.F. Barna, General self-similar solutions of diffusion equation and related constructions, Romanian Journal of Physics **67,** 2022, 101, pp.1-16.
28. Mahmoud Saleh, Endre Kovács, Imre Ferenc Barna, and László Mátyás, New analytical results and comparison of 14 numerical schemes for the diffusion equation with space-dependent diffusion coefficient, Mathematics **10**, 2022, 2813, pp.1-28.
29. Imre Ferenc Barna, Mihály András Pocsai, and László Mátyás, Time-dependent analytic solutions for water waves above sea of varying depths, Mathematics **10**, 2022, 2311 pp.1-16.
30. Imre Ferenc Barna and László Mátyás, Advanced self-similar solution of regular and irregular diffusion equations, Mathematics **10**, 2022, 3281 pp.1-17.

31. Imre Ferenc Barna, Gabriella Bognár, László Mátyás and Krisztián Hriczó, Self-similar solutions of time dependent compressible and incompressible boundary layers including heat conduction, Journal of Thermal Analysis and Calorimetry **147,** 2022, pp.13625-13632.
32. László Mátyás and Imre Ferenc Barna, Even and odd self-similar solutions of diffusion equation for infinite horizon, Universe **9**, 2023, 264, pp.1-16.
33. Humam Kareem Jalghaf, Endre Kovács, Imre Ferenc Barna and László Mátyás, Analytical Solution and Numerical Simulation of Heat Transfer in Cylindrical- and Spherical-Shaped Bodies, Computation **11**, 2023, 131, pp. 1-21.
34. Imre Ferenc Barna and László Mátyás, Diffusion Cascades and Mutually Coupled Diffusion Processes, Mathematics **12**, 2024, 3298, pp. 1-12.
35. Imre Ferenc Barna and László Mátyás, Analytic Solutions of the Complex Diffusion Equation with Aspects on Quantum Mechanics, International Journal of Modern Physics A **40**, 2025, 2542009, pp.1-17.
36. MÁTYÁS, László; BARNA, Imre Ferenc. Mathematically Exact Non-Square-Integrable Solutions in Schrödinger-Equivalent Diffusion Dynamics. *Mathematics*, 2026, 14.7: 1162.
37. MÁTYÁS, László; BARNA, Imre Ferenc. Flow and Diffusion: Exact Solutions of Different Models Obtained with Traveling Wave and Self-Similar Transformations. *Symmetry*, 2026, 18.10: 1746.

Lucrări ştiinţifice publicate în volumele manifestărilor ştiinţifice

László Mátyás, Az ásványvízben előforduló buborékképződésről (Despre formarea bulelor în apa minerală), Apele Minerale din Regiunea Carpatică, A V-a Conferință Științifică Internațională, Editor: Máthé István, Székely Gabriella, Miercurea Ciuc, 2008, 131-134.

László Mátyás, Ozmózis és a víz ásványtartalma (Osmoză şi conţinutul de minerale în apă), Apele Minerale în Regiunea Carpatică, A IX-a Conferință Științifică Internațională, Editor: Máthé István, Băile Herculane, 2012, 151-154.

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