Universitatea Babeș-Bolyai
Facultatea de Fizică
Departamentul de Fizică al Liniei Maghiare

Prof. Dr. Zoltán Néda

LISTA

lucrărilor ştiinţifice în domeniul disciplinelor din postul didactic

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A) **Teza de doctorat**

Z. Néda: Metode de tip Monte Carlo în studiul ordonării magnetice (*Monte Carlo methods for studying magnetic ordering*), UBB, Facultatea de Fizică (14.10.1994), supervisor: Prof. Dr. Coldea Marin

==========

B) **Cărți și capitole de cărți**

Cărți

1. **Z. Néda**; "***Stochasztikus szimulácós módszerek***" (Stochastic simulation methods), Erdélyi Tankönyvtanács, (2000, Cluj, Romania)
2. **Z. Néda**, "***A Fényre szabott Fizika* (...vagy A speciális relativitás elmélete)**" (Special Relativity from a new perspective) Presa Universitara (Univ. Press) (2008)
3. **Z. Néda**, A. Libál and K. Kovács; "**Elemi Kvantummechanika**" (Introductory Quantum Mechanics), Univ. Press of Cluj, 2005, ISBN 973-610-399-4
4. **Z. Néda**, B. Tyukodi and A.E. Kacso, **A klasszikus statisztikus fizika alapjai** (Introduction to Classical Statistical Physics) (ISBN: 978-973-114-187-9, Editura Abel, Cluj-Napoca, 2014) 180 pagini

==========

C.) **Articole/studii in extenso, publicate în reviste din fluxul științific internațional principal**

publicații ISI (WOS)

1. A. Kuki, S. Lipcsei, I. Gere, F. Járai-Szabó, A. Gergely, D. Ugi, P.D. Ispánovity, Z. Dankházi, I. Groma, **Z. Néda**; *Statistical analogies between earthquakes, micro-quakes in metals and avalanches in the 1D Burridge-Knopoff model,* **Geofizika**, vol. 40, 1 (2023)
2. I. Gere, S. Kelemen, G. Toth, T.S. Biro and **Z. Néda**; *Wealth distribution in modern societies: Collected data and a master equation approach*, **Physica A: Statistical Mechanics and its Applicati**ons, vol. 581, 126194 (2021)
3. T.S. Biro, L. Csillag and **Z. Néda**; Transient Dynamics in the Random Growth and Reset Model, **Entropy**, vol. 23, 306 (2021)
4. T.S. Biro and **Z. Néda**; *Gintropy: Gini Index Based Generalization of Entropy*, **Entropy**, vol. 22, 879 (2020)
5. **Z. Néda**, I. Gere, T.S. Biro and N. Derzsy, *Scaling in income inequalities and its dynamical origin*, **Physica A: Statistical Mechanics and its Applications**, vol. 549, 124491 (2020)
6. T.S. Biró. A. Telcs and **Z. Néda**, *Entropic divergence and Entropy Related to Nonlinear Master Equations*, **Entropy,** vol. 21, 993 (2019)
7. K. Dénes, B. Sándor and **Z. Néda**, *Pattern selection in a ring of Kuramoto oscillators*, **Communications in Nonlinear Science and Numerical Simulation**, vol. 78, UNSP 104868 (2019)
8. I. Papp, L. Varga, M. Afifi, I. Gere and **Z. Néda**, *Scaling in the space-time of the Internet*, **Scientific Reports**, vol. 9, 9734 (2019)
9. K. Dénes, B. Sándor and **Z. Néda**, *On the predictibility of the final state in a ring of Kuramoto oscillators*, **Romanian Reports in Physics**, vol. 71, 108 (2019)

10. S. Kajántó and **Z. Néda**; *Universality in the coarse-grained fluctuations for a class of linear dynamical systems*, **Physica A: Statistical Mechanics and its Applications**, Vol. 503, pp. 215-220 (2018)
11. T.S. Biró and **Z. Néda**; *Unidirectional random growth with resetting*, **Physica A: Statistical Mechanics and its Applications**, Vol. 499, pp. 335-361 (2018)
12. T.S. Biró. A. Telcs and **Z. Néda**; *Entropic Distance for Nonlinear Master Equatio*n, **UNIVERSE**, Vol. 4, pp. 10 (2018)
13. L. Varga, G. Tóth and **Z. Néda**, *Commuting patterns: the flow and jump model and supporting data*, **EPJ Data Science**, vol. 7, 37 (2018)
14. **Z. Néda**, L. Varga and T.S. Biró, *Science and Facebook: The same popularity law!,* **Plos One**, vol. 12, pp. e0179656 (2017)
15. **Z. Néda**, L. Davidova, Sz. Ujvári and G. Istrate, Gambler's ruin problem on Erdos-Renyi graphs, **Physica A: Statistical Mechanics and its Applications**, vol. 468, pp. 147-157 (2016)
16. G. Máté and **Z. Néda,** *The advantage of inhomogeneity –Lessons from a noise driven linearized system*, **Physica A: Statistical Mechanics and its Applications**, vol. 445, pp. 310-317 (2016)
17. B. Sándor and **Z. Néda**; *A spring-block analogy for the dynamics of stock indexes*, **Physica A: Statistical Mechanics and its Applications**, vol. 427, pp 122-131 (2015)
18. Sz. Boda. L. Davidova, **Z. Néda**; *Order and disorder in coupled metronome systems*, **European Physical Journal – ST,** vol. 233, pp. 649-663 (2014)
19. L. Davidova, Sz. Boda and **Z. Néda**; *Order-disorder transitions in a minimal model of self-sustained coupled oscillators*, **Romanian Reports in Physics**, vol .66, pp. 1018-1028 (2014)
20. B. Tyukodi and **Z. Néda**; *Kinetic Roughening of a soft dewetting line under quenched disorder: A numerical study*, **Physical Review E,** vol. 90, 052404 (2014)
21. Sz. Boda, Sz. Ujvári, A. Tunyagi and **Z. Néda**, *Kuramoto type phase transition with metronomes*, **European Journal of Physics**, vol. 34, pp. 1451-1463 (2013)
22. Sz. Horvát and **Z. Néda**, *The complex parameter space of a two-mode oscillator model*, **Physica D – Nonlinear Phenomena**, vol. 256, pp. 43-50 (2013)
23. Sz. Boda, **Z. Néda**, B. Tyukodi and A. Tunyagi, *The rhythm of coupled metronomes*, **European Physical Journal B**, vol. 86, 263 (2013)
24. B. Tyukodi, I.A. Chioar and **Z. Néda**, *A kinetic Monte Carlo study for stripe-like magnetic domains in ferrimagnetic thin films*, **Central European Journal of Physics**, vol. 11, pp. 487-496 (2013)
25. B. Tyukodi, Z. Sarkozi, **Z. Néda**, A. Tunyagi and E. Gyorke, *The Boltzmann constant from a snifter*; **European Journal of Physics**, vol. 33, 455-465 (2012)
26. F. Járai-Szabó **and Z. Néda**; *Winning strategies in congested traffic*, **Int. J. of Modern Physics C,** vol. 23, pp. 1250063 (2012)
27. R. Deák, **Z. Néda** and P.B. Barna; *A kinetic Monte Carlo approach for self-diffusion of Pt atom clusters on a Pt (111) surface*, **Comm. in Comp. Phys**., vol. 10, pp. 920-939 (2011)
28. F. Járai-Szabó, E.A. Horvát, R, Vajtai and **Z. Néda**; *Spring-block approach for nanobristle patterns,* **Chem. Phys. Lett**., vol. 511, pp. 378-383 (2011)
29. G. Mate**, Z. Néda** and J. Benedek, *Spring-Block model reveals region-like structures*, **PLOS ONE**, vol. 6, e16518 (2011)
30. K.T. Leung and **Z. Néda**, *Criticality and pattern formation in fracture by residual stresses*, **Physical Review E**, vol. 82, 046118 (2010)
31. Sz. Horvát, A. Derzsi**, Z. Néda** and A. Balog, *A spatially explicit model for tropical tree diversity patterns***, Journal of Theoretical Biology**, vol. 265, pp. 517-523 (2010)
32. **Z. Neda**, F. Jarai-Szabo, E. Kaptalan and R. Mahnke, *Spring-block models and highway traffic*, **Control Engineering and Applied Informatics**, vol. 11 pp. 3-10 (2009)
33. **Z. Néda,** R. Sumi, M. Ercsey-Ravasz, M. Varga, B. Molnár and Gy. Cseh, *Correlation clustering on Networks*, **J. Phys. A**, vol. 42, 345003 (2009)
34. M. Ercsey-Ravasz, T. Roska and **Z. Néda**, *Stochastic optimization of spin-glasses on cellular neural/nonlinear network-based processors*, **Physica A: Statistical Mechanics and its Applications,** vol. 388, pp. 1024-1030 (2009)
35. R. Sumi, **Z. Néda**, A. Tunyagi and Cs. Szász, *Nontrivial spontaneous synchronization,* **Physical Review E**, vol. 79, 056205 (2009)

36. M. Ercsey-Ravasz, Zs. Sárkozi, **Z. Néda**, A. Tunyagi and I. Burda; *Collective behavior of electronic fireflies,* **European Journal of Physics** *B*, vol. 65, pp. 271-277 (2008)
37. M. Ercsey-Ravasz, T. Roska and **Z. Néda***, Statistical physics on cellular neural network computers*, **Physica D**, vol. 237, 1226-1234 (2008)
38. R. Deak, **Z. Néda** and P. Barna; A *novel kinetic Monte Carlo method for epitaxial growth,* **Journal of Optoelectronics and Advanced Materials**, vol. 10, pp. 2445-2450 (2008)
39. R. Sumi and **Z. Néda**; *Synchronization of multi-mode pulse-coupled stochastic oscillators*, **Journal of Optoelectronics and Advanced Materials**, vol. 10, pp. 2455-2460 (2008)
40. A. E. Horvath, F. Jarai-Szabo and Z. Neda, *Spring-block type model for crack propagation in glass plates,* **Journal of Optoelectronics and Advanced Materials**, vol. 10, pp. 2433-2437 (2008)
41. M.A Santos, R. Coelho, G. Hegyi, **Z. Néda** and J.J. Ramasco*, Wealth distribution in modern and medieval societies,* **European Physical Journal ST***, vol. 143, pp. 81-85 (2007)*
42. G. Hegyi, **Z. Néda** and M.A. Santos, *Wealth distribution and Pareto's law in the Hungarian medieval society,* **Physica A: Statistical Mechanics and its Applications,** vol. 380, 271-277 (2007)
43. K. Kovács and **Z. Néda**, Disorder-driven phase transition in a spring-block type magnetization model, **Physics Letters A**, vol. 361, 18-23 (2007)
44. K. Kovacs and **Z. Néda,** *Critical behavior of a spring-block model for magnetization***, J. of Optoelectronics and Advanced Materials,** vol. 8, 1088-1092 (2006)
45. M. Ercsey-Ravasz, T. Roska and **Z. Néda**, *Perspectives for Monte Carlo simulations on the CNN universal machine*, I**nt. J. of Modern Physics C**, vol. 17, 909-922 (2006)
46. F. Járai-Szabó, A. Kuttesch, S. Astilean, **Z. Néda**, N. Chakrapami, P.M. Ajayan and R. Vajtai, *Spriing-block models for capillarity driven self-organized nanostructures,* **J. of Optoelectronics and Advanced Materials,** Vol. **8**, 1083-1087 (2006)
47. **Z. Néda**, R. Florian, M. Ravasz et al., *Phase transition in an optimal clusterization model*, **Physica A: Statistical Mechanics and its Applications**, vol. **362**, 357-369 (2006)
48. K. Kovács, Y. Brechet and **Z. Néda**; *A spring-block model for Barkhausen noise*, **Modelling and Simulation in Mat. Sci. Eng.** vol. **13** (8): 1341-1352 (2005)
49. F. Járai-Szabó, S. Astilean and **Z. Néda**; *Understanding self-assembled nanosphere patterns*, **Chemical Physics Letters**, Volume **408**, pp. 241-246 (2005)
50. R. Coelho, **Z. Néda**, J.J. Ramasco And M.A. Santos; *A family-network model for wealth distribution in societies*; **Physica A: Statistical Mechanics and its Applications**, vol. 353, 515-528 (2005)
51. **Z. Néda, A.** Nikitin and T. Vicsek; *Synchronization of two-mode stochastic oscillators: a new model for rhythmic applause and much more*, **Physica A: Statistical Mechanics and its Applications,** vol. 321, 238 (2003)
52. **Z. Néda** and S. Volkán-Kacsó; *Flatness of the setting Sun*, **Am. J. Phys**., vol. 71, 379 (2003)
53. H. Jeong, **Z. Néda** and A.L. Barabási; *Measuring preferential attachment in evolving networks*, **Europhys. Lett.,** vol. 61, 567 (2003)
54. Farkas, I. Derényi, H. Jeong, **Z. Néda**, Z.N. Oltvai, E. Ravasz, A. Schubert, A.-L. Barabási, T. Vicsek, *Networks in life, scaling properties and eigenvalue spectra*, **Physica A: Statistical Mechanics and its Applications**, vol. 314, 25 (2002)
55. A.L. Barabási, H. Jeong, **Z. Néda**, E. Ravasz, A. Schubert, T. Vicsek, *Evolution of the social network of scientific collaborations,* **Physica A: Statistical Mechanics and its Applications**, vol. 311, 590 (2002)
56. **Z. Néda,** K.-t. Leung, L. Jozsa and M. Ravasz; *Spiral cracks in drying precipitates***, Phys. Rev. Lett.** vol. 88, 095502 (2002)
57. A. Nikitin, **Z. Néda** and T. Vicsek; *Collective Dynamics of two-mode stochastic oscillators*; **Phys. Rev. Lett**., vol. 87, 024101 (2001)
58. K.-t. Leung, L. Jozsa, M. Ravasz and **Z. Néda**; *Spiral cracks without twisting;* **NATURE**, vol. 410, 166 (2001)
59. M. Perez, J.-C. Barbe, **Z. Néda**, Y. Brechet and L. Salvo*; Computer simulation of the microstructure and rheology of semi-solid alloys under shear*, **Acta. Mater**., vol. 48, 3773 (2000)
60. K.-t. Leung and **Z. Néda**; *Pattern formation and selection in quasi-static fracture*, **Phys. Rev. Lett.** vol. 85, 662 (2000)
61. **Z. Néda**, E. Ravasz, T. Vicsek, Y. Brechet and A.L. Barabási; *Physics of the rhythmic applause*, **Phys. Rev. E**, vol. 61, 6987 (2000)
62. **Z. Néda**, E. Ravasz, Y. Brechet, T.Vicsek and A.L. Barabási*; The sound of many hands clapping*, **NATURE**,

vol. 403, 849 (2000)

63. **Z. Néda**, A. Rusz, E. Ravasz, P. Lakdawala and P.M. Gade; *Spatial Stochastic Resonance in one-dimensional Ising Systems*, **Phys. Rev. E**, vol. 60, R3463 (1999)
64. **Z. Néda**, R. Florian and Y. Brechet; Reconsideration of *continuum percolation of isotropicly oriented sticks in 3d revisited*, **Phys. Rev. E**, vol. 59, 3717 (1999)
65. K-T. Leung and **Z. Néda**; *Non-trivial stochastic resonance temperatures for the kinetic Ising models***, Phys. Rev. E**, vol. 59, 2730 (1999)
66. Y. Brechet and **Z. Néda**; *On the circular hydraulic jump*, **Am. J. Phys.** vol. 67, 723 (1999).
67. K-T. Leung and **Z. Néda**; *Response in kinetic Ising model to oscillating magnetic fields*, **Phys. Lett. A**, vol. 246, 505 (1998)
68. D. Weygand, Y. Brechet and **Z. Néda**; *Cappilarity-driven interface dynamics: application to grain growth phenomenon*, **Phil. Mag. B**, vol. 75, 937 (1997)
69. **Z. Néda** and Y. Brechet*; A two-step Monte Carlo method for wetting on heterogeneous surfaces*, **Modelling Simul. Mater. Sci. Eng.** vol. 5, 93 (1997)
70. **Z. Néda**; *Stochastic resonance in 3D Ising ferro-magnets*, **Phys. Lett. A**, vol. 210, 125 (1996)
71. **Z. Néda**, B. Bakó and E. Rees; *The dripping faucet experiment revised*, **CHAOS**, vol. 6, 59 (1996)
72. Y. Brechet. D. Bellet and **Z. Néda***; Patterns in fracture: Drying experiments and thermal shock,* **Key Engineering Materials** vol. 103, 247 (1995) (Solid State Phenomena Vols. 42-43, Eds. G. Ananthakrishna, L.P.Kubin and G. Martin)
73. Y. Brechet and **Z. Néda**; *On the Structure of Thermal Cracks in Glass*, **Europhys. Lett.**, vol. 32, 475 (1995)
74. **Z. Néda**; *Stochastic resonance in Ising systems*, **Phys. Rev. E**, vol. 51, 5315 (1995)
75. **Z. Néda***; Curie temperatures for three-dimensional, binary Ising ferro-magnets*, **Phys. Rev. B**, vol. 50, 3011 (1994)
76. **Z. Néda**; *Curie temperatures for site-diluted Ising ferro-magnets***, J. Phys. I** (France), Vol. 4, 175 (1994)

Alte publicații internaționale

1. **Z. Néda**; *The Space-time of Physics: a Kinetic Space,* **Hungarian Studies Yearbook**, vol. 1, pp. 10-24 (2020)
2. G. Máté, A. Kovács, **Z. Néda;** *Hierarchical settlement Networks*, **Regional Statistics**, vol 3, pp. 30-40 (2013)

Reviste ale Academiei Române

1. **Z. Néda**; *1/f fluctuations in an electric device with fluorescent tube starter and resistor*, **Rom. J. Phys**., vol. 41, 635 (1996)
2. **Z. Néda**; *Curie temperatures for binary Ising ferromagnets on the square lattice*, **Rom. J. Phys.**, vol. 39, 575 (1994).

Publicații in extenso apărute în lucrări ale principalelor conferințe internaționale de specialitate

1. L. Davidova, Sz. Ujvari and **Z. Neda**; *Sync or anti-sync-dynamical pattern selection in coupled self-sustained oscillator system*, **Journal of Physics** CS, (25th IUPAP Conference on Computational Physics, CCP2013), vol. 510, art. Number: 012009 (2014)

2. Z. Neda**,** *Monte Carlo methods for magnetic systems***, Annals of the West University of Timisoara**, Physics, Proceedings of the European School on Magnetism**,** pp. 29-33, Septembrie, 2009

3. Sz. Horvát, E. Á Horváth, G. Máté, E. Káptalan and **Z. Néda**, *The Unexpected Synchronization*, **Journal of Physics, CS**, vol. 182, 012026 (2009)

4. **Z. Neda**, F. Jarai-Szabo, E. Kaptalan and R. Mahnke, *Spring-block models and highway traffic*, **Control Engineering and Applied Informatics**, vol. 11 pp. 3-10 (2009)

5. M. Ercsey Ravasz, T. Roska and **Z. Néda**, *Random number generator and Monte Carlo type simulations on the CNN-UM,* **Proceedings of the 2006 10th IEEE International Workshop on Cellular Neural Networks and their Applications**, pp. 47-52 (2006)

Alte lucrări și contribuții științifice

CNCSIS –reviste Românești

1. Sz. Kelemen, L. Varga and **Z. Néda,** *Cross-correlations in the Brownian Motion of colloidal nanoparticles*, **Studia UBB- Physica**, vol. 65 (1-2), 27-34 (2020)
2. A.L. Davidova, S. Borbely and **Z. Néda**, *Collective behavior of coupled quantum mechanical oscillators*, **Studia UBB Physica**, Vol. 60, pp. 91-101 (2015)
3. **Z. Néda,** *Monte Carlo methods for magnetic systems***, Annals of the West University of Timisoara**, Physics, Proceedings of the European School on Magnetism**,** pp. 29-33, Septembrie, 2009
4. K. Kovacs and **Z. Néda**, *Disorder-Induced Phase Transition in a Spring-Block type magnetization model*, **Műszaki Szemle**, vol. 42, pp. 26-30 (2008)
5. Balogh, B. Nagy and **Z. Néda**; *The analysis of stock market indexes with the method of inverse statistics*, **Forumul Economic**, vol. 11 (80), pp. 55-68 (2008)
6. **Z. Néda** and Y. Brechet; *Thermal fluctuations of domain interfaces in the 2D kinetic Ising model*, **Studia Univ. Babeş-Bolyai**, Physica, XLIV, 1, (1999)
7. **Z. Néda**, R. Albert, I. Albert and T. Neda*; On the applicability of the Quantum Monte Carlo methods*, **Studia Univ. Babeş-Bolyai**, Physica XXXIX, 1, 91 (1994)

Popularizare de știință

1. **Z. Néda**, Sz. Boda and E. Káptalan Erna: *Rend a rendezetlenségből, játék metronomokkal*, **Természet világa**, 2013/II különszáma (*Káosz, Környezet, Komplexitás*) (2013)
2. **Z. Néda,** E. Kaptalan**,** *A nem vart ritmus***, Fizikatanitas tartalmasan es erdekesen-Magyarul Tanito Fizikatanarok Nemzetkozi Konferenciaja**, 2009 aug, ISBN 978963241150-2, p . 269-274
3. **Z. Néda** and E. Káptalan**,** *A sokaság ritmusa (The rhythm of the society),* **Fizikai Szemle,** Szeptember 2009
4. **Z. Néda**; *A Julia halmazok matematikai szépségei* (The mathematical beauty of Julia sets), **Matematikai Lapok**, XCV, 1-2, 18-22 (1990)

D. Lucrări publicate în ultimii 10 anii în reviste şi volume de conferinţe cu referenţi

(neindexate)

- Reviste

1.

- Selecţie cu maximum 20 lucrări în volume de conferinţe

1.

E. Brevete obţinute în întreaga