

## CURRICULUM VITAE

**Dr. NÉDA Zoltán**

Profesor Universitar de Fizică Teoretică  
Universitatea Babeş-Bolyai, Facultatea de Fizică

**Locul și anul nașterii:** 1964, Cluj-Napoca



### Studii:

Instituție	Perioadă	Diplomă
Liceul Teoretic I. Báthory Cluj-Napoca	Sept.1970-Jun. 1982	studii generale, gimnaziale și liceale (diplomă de bacalaureat)
Univ. Babeş-Bolyai Cluj-Napoca	Sept. 1983-Jun. 1987	Diplomă de Merit, Diplomă de Fizician
Univ. din București București	Sept. 1987- Jun. 1988	Specializare cercetare, fizica polimerilor (echivalent masters)
Univ. Babes-Bolyai Cluj-Napoca	Sept. 1990- Oct. 1994	diplomă de doctor în Fizică

Membru extern ales în Academia de Științe din Ungaria: 2007

Conducător doctorat din anul: **2003** (ordinul MEC: 4110/05.06.2003)

### Experiență profesională:

Instituție	Perioadă	Poziție	Detalii
IRNE-Pitești, Mioveni, Romania	Aug.1988- Sept.1990	fizician	Calculare numerice în fizica reactorilor energetici
Univ. Babeş-Bolyai, Cluj, Romania	Ian. 1991- present	Asistent, Lector, Conferentiar si Profesor Univ.	toate cursurile de fizică teoretică, seminarii +cercetare
INPG/ENSEEG-LTPCM, Grenoble, France	Ian. 1996- Ian.1997	Post-doc	cercetare în fizică statistică și computațională
Academia Sinica, Inst. of Physics, Taipei, Taiwan	Feb.1998-March 1999	Post-doc	cercetare în fizică statistică și computațională
Notre-Dame University, Notre-Dame, SUA	Aug. 2000-Mai 2001, and Aug. 2003- Ian. 2004	Visiting professor	cursuri de fizică generală, fizică statistică + cercetare

### Alte specializări internaționale mai lungi de 3 luni:

- bursă Tempus în Sisteme Complexe (1993, Naples, Italy); Coordinare de program în fizică computațională și bursă NRC (2009, Bergen, Norway); Fellowship in Fizică Statistică și Sisteme Complexe (2000, Collegium Budapest, Institute for Advanced Studies, Budapest, Hungary); University of Porto - NATO Science Fellowship (2007) , Portugalia;

**Profesor și cercetător invitat:** Los Alamos National Laboratory (2010), Goethe Universitet, Frankfurt, Germany (2015) , Eotvos Lorand University, Budapest, Hungary (2011, 2012, 2014,2016), Academia Sinica Taipei, Taiwan (2003), North Eastern University Boston, USA (2014), Bergen University (1995, 1998, 2007,2009)

**Limbi vorbite:** Romana (excellent), Maghiara (nativ), Engleza (excellent), Franceza (mediu)

**Domenii de cercetare:** fizică statistică și computațională aplicat în probleme interdisciplinare, probleme de știința materialelor și de sisteme nelineare.

**Indici scientiometrici:**

- **publicații WOS : 106** ; publicații științifice BDI: **20** ; popularizare de științe: **10**; cărți: **5**
- citări WOS totale: **3500**
- citări WOS fără autocitări: **3047**
- citări Google Scholar: **7062**
- indice Hirsch: **20 (WOS), 20 (Scopus), 28 (Google Scholar)**

**Adresa de profil researcherid.com:** <http://www.researcherid.com/rid/C-3754-2011>

**Premii și distincții:**

- membru ales la Collegium Budapest-Institute of Advanced Studies, Budapesta, Ungaria
- premiul Bolyai (ca conducător) în categoria junior cu M. Ercsey-Ravasz in 2003 (Ungaria)
- premiul Academiei Române "Ștefan Procopiu" in 2004
- ales membru extern al Academy Ungare de Științe în 2007
- Maestru al Științei din Transilvania (Cluj, oferit de Academia Ungaria, filiala Cluj, 2013)
- "Mestertanár" (profesor maestru) (Budapest, oferit de OTDT, 2013)
- Bursă de excelență din Ungaria (2014-2015)
- președinte ales a filialei Cluj al Academiei Ungare de Științe (2017-2020)
- placheta de onoare count Mikó (Societatea Muzeului Ardelean, EME, 2019)

**Mediatizare rezultatelor cercetării:** New York Times, BBC Science News, Discovery Channel, Die Welt, Fe Figaro, Népszabadság. South Bend Tribune, Duna TV, Monitorul de Cluj, Transindex, Szabadság, Kronika, Radio Cluj, TVR Cluj, Adevărul, etc.

**referent regulat la:** Phys. Rev. Lett., Phys. Rev. E și B, Physica A și D, Europhys. Lett. , Chaos, Scientific Reports, Regional Statistics, Entropy, Royal Society Open Science, Plos One, etc.

**organizator principal la conferințele internaționale:**

BGL7, 7-th International Conference on Differential Geometry and its Applications, Cluj-Napoca, Romania 2010 (<http://bgl.math.ubbcluj.ro>);

Complex Systems and Networks, Sovata, 2007, Romania (<http://www.summerschools.ro>);

Stochastic Phenomena (Cluj, June, 2008) (<http://www.summerschools.ro>)

MACS 12, 2018, Cluj-Napoca, Romania (<http://www.cs.ubbcluj.ro/~macs/2018/>)

MECO45, 2020, online, Cluj-Napoca, Romania (<http://atom.ubbcluj.ro/meco45/>)

**Director/Coordonator Partener de grant:** director la 4 granturi naționale (IDEI, PCE, CNCSIS); director partener la 3 granturi naționale (IDEI Complexe, PCCF, Parteneriat); director la 2 proiecte internaționale de colaborare (Bergen Computational Physics Lab, Brancusi program); coordinator la POSDRU/post-doc programs, UBB; supervisor la 2 granturi (grant Marie Curie FP7, grant PD)

### Lista granturi de cercetare:

2005/2007 "Studiul unor nanostructuri obtinute prin efecte capilare. Modelari si simulari computeristice, grant national tip A, **director proiect**, CNCISIS

2008/2011 " Echipamente tolerante la defecte controlate prin arhitecturi electronice de inspiratie biologica", grant national, Parteneriate, Proiecte Complexe PC, **director proiect la UBB**, UEFISCDI

2009/2012 "Modele de tip bloc-resort pentru fenomene complexe", grant national, IDEI-PCE, UEFISCDI, **director proiect**, UEFISCDI

2010/2014 "Nanomanipularea biomoleculelor cu ajutorul microscopiei de forta atomica", grant national, Proiecte Complexe de cercetare Exploratorie (PCCE), **director Partener 6**, UEFISCDI

2012/2015 "Sincronizare emergenta in sisteme complexe", IDEI-PCE, **director grant**, UEFISCDI

2017/2019 " Structuri spatio-temporale emergente in sisteme fizice si socio-economice", IDEI-PCE, **director grant**, UEFISCDI

2018/2022 " Intelegerea si modelarea structurilor spatio-temporale ale inegalitatilor si polarizarii in relatie cu caracteristicile psihologice", PCCF - Proiecte Complexe de Cercetare de Frontiera, **director Partener 4**, UEFISCDI

**Conferințe plenare invitate: > 20**

### Teze de doctorat conduse și finalizate:

1. Statistical Physics Methods for Understanding Complex Networks (**Papp Istvan**) 2020
2. Dynamics in social systems: a computational physics approach (**Varga Levente**) 2019
3. Collective behavior and spatio-temporal pattern formation in Dynamical Systems (**Larisa Davidova**) 2018
4. A depinning approach to amorphous plasticity and dewetting (**Tyukodi Botond**) 2016  
cotutelă cu ESPCI, Paris, Franța
5. Continuous-Time Dynamical Systems for Solving Constraint Satisfaction Problems (**Molnar Botond**) 2016
6. Nem-hagyományos értelemben vett modern fizika a középiskolában (Non-traditional way of teaching modern physics, **Klara Baranyai**), școala doctorală, ELTE, Budapesta, 2015
7. Stochastic simulations with applications in Material Sciences (**Deak Robert**) 2014  
cotutelă cu ELTE Budapesta.
8. Order-Disorder Transitions in Coupled Oscillator Systems (**Boda Szilard**) 2013
9. Computational and analytical modelling of astrophysically important stochastic processes (**Gabriela Raluca Mocanu**) 2013
10. Statistical Physics Studies of Complex Systems (**Horvat Szabolcs**) 2012
11. Statistical Physics Approach to Complex Social Systems (**Derzsy Noemi**) 2012
12. Statistical physics models for biological and sociological phenomena (**Derzsi Aranka**) 2012
13. Analitical and Computational study of social and biological collective phenomena (**Kaptalan Erna Katalin**) 2011
14. Theoretical and Experimental Study of Phase Transitions in Complex Systems (**Sumi Robert-Zoltan**) 2009
15. Applications of Cellular Neural/Nonlinear Networks in Physics (**Ravasz Maria-Magдона**) 2008
16. The Study of Magnetization Phenomena Using Monte Carlo Methods (**Katalin Kovacs**) 2007

Cluj-Napoca

21.09.2020

Prof. Dr. Néda Zoltán

## **Short overview in English:**

### **Research profile:** Prof. Dr. Zoltán Néda

Zoltán Néda has a wide research interest ranging from problems in synchronization, pattern formation, network-science, material science and nonlinear dynamics to interdisciplinary fields like bio-, econo- and socio-physics problems. All his research works are converging however in applying methods and models of Computational Physics and Statistical Physics in these fields. Beside purely theoretical and computational studies he also has endeavors in simple experimental studies with low cost kitchen-type experiments. He defines himself not as a specialist in a narrow field, but rather as a researcher with wide interest in everything which is highly non-trivial and surprising. The philosophy behind his research is to look for intriguing complex phenomena in our every-day life that could be understood in the view of simple statistical physics or computational models. This kind of research might not be the best philosophy in gaining an international reputation as a top-specialist, but it proved to be rewarding under the constraints of tough financial conditions and limited research funds in Romania. In universities where one of the top priorities is to attract and introduce students to research, it also has several other advantages. By applying this research philosophy many good students started their research under his supervision and became world-renewed scientist. He published many of his well-cited works with undergraduate and master students. For example, his two papers in the journal "Nature" were published both of them having undergraduate student coauthors, and the research resulted also from simple undergraduate research projects.

He has a broad international collaboration publishing regularly with top researchers from USA, France, Taiwan, Norway, Hungary, Italy, Germany and Portugal in journals like: Physical Review Letters, Phys. Rev. E, Physica A, Plos One, Scientific Reports, Physics Letters, European Physics Letters, etc... Due to the fascinating problems that are considered by Prof. Néda his research was and it is well mediatized. Echoes about these research results appeared in: New York Times, BBC Science News, Discovery Channel, Die Welt, Fe Figaro, Népszabadság, South Bend Tribune, Duna TV, Monitorul de Cluj, Transindex, Szabadsag, Radio Cluj, TVR Cluj, Adevarul, etc..

His present research interests are in the field of dynamical systems and econo-physics related problems. Together with his present group (formed by three PhD students, two master students and three undergraduate students) he studies non-trivial synchronization patterns including chimera states in rings of coupled Kuramoto oscillators and in the collective behavior of flickering candle-flames. The group also investigates and models stationary distributions arising in complex socio-economic systems (income and wealth distribution, spatial inequalities) and convergence to these stationary states.

### **Teaching profile:** Prof. Dr. Zoltán Néda

Zoltán Néda has a 30 years old experience in University level teaching. His teaching activity is mainly linked to the Physics Department of the Babeş-Bolyai University (Cluj, Romania), apart of this he has also international experiences. Being fluent in Romanian, Hungarian and English he used this skill for various international academic collaborations. He was for three semesters visiting professor in USA (2000 and 2003) and he is constantly lecturing at the Roland Eötvös University in Budapest, Hungary in the PhD program for high-school physics teachers. He taught a wide variety of courses and seminars both for undergraduate and graduate programs:

- between 1991-1994, as a PhD student and Assistant Professor at the Babeş-Bolyai University he conducted Quantum Mechanics, Electrodynamics, Classical Mechanics, Heat and Thermodynamics seminars/ labs for undergraduate physics and chemistry students

- starting from 1995 (after obtaining his PhD), he taught and was responsible for the following theoretical physics courses and seminars in the Physics Department of the Babeş-Bolyai University: Quantum Mechanics I and II (undergraduate level), Statistical Physics (undergraduate level), Electrodynamics and Relativity Theory (undergraduate level), Stochastic Simulation Methods with Interdisciplinary Applications (masters level), Dynamical Systems (undergraduate level), Research methods and ethics (doctoral level), Basic Models and Methods of Theoretical Physics (doctoral level). In this period, he was promoted from Assistant Professor to Associate Professor and from 2003 he is a full Professor. He obtained his PhD supervising right in 2003.

- between 2000-2001 he was a visiting Associate Professor at the Physics Department of the Notre Dame University, Indiana, USA, teaching for two semesters an open undergraduate general course: Physics a World View.

- in the first academic semester of 2003 he was a visiting professor in the Physics Department of the Notre Dame University, Indiana, USA, teaching for one semester the classical Thermal Physics course for undergraduate students.

- starting from 2004 he is teaching also in the physics doctoral program of the Roland Eötvös University in Budapest the course: Collective Behavior.

During his teaching career, he elaborated several freely accessible online resources for his courses: <http://www.phys.ubbcluj.ro/~zoltan.neda/index3.html>. He published together with his students the following books, that are used as main educational materials for his courses:

1. Z. Néda; "*Stochasztikus szimulációs módszerek*" (Stochastic simulation methods, in Hungarian), Erdélyi Tankönyvtanács, (2000, Cluj, Romania); 2. Z. Néda, "*A Fényre szabott Fizika - A speciális relativitás elmélete*" (Physics tailored on light- Special Relativity from a new perspective, in Hungarian ) Presa Universitara (2008); 3. Z. Néda, A. Libál and K. Kovács; "*Elemi Kvantummechanika*" (Introductory Quantum Mechanics, in Hungarian), 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, in Hungarian) (ISBN: 978-973-114-187-9, Editura Abel , Cluj-Napoca, 2014)

As part of teaching he is involved in science popularization among high-school and elementary school students. He is the president of the EmpirX Association ([www.empirx.ro](http://www.empirx.ro)), promoting science through many open, show-like activities in Transylvania. He also conducts a wide science popularization activity as the president of the Transylvanian branch of the Hungarian Academy of Sciences ([www.kab.ro](http://www.kab.ro)).

Zoltán Néda supervised over 30 undergraduate license theses, over 15 master dissertations and 16 successful PhD theses. He is constantly invited by many student, civil and educational organizations for science popularization talks at various level.

# LISTA DE PUBLICAȚII

## a.) Lista de 10 articole relevante

1. T.S. Biró and **Z. Néda**; *Unidirectional random growth with resetting*, **Physica A: Statistical Mechanics and its Applications**, Vol. 499, pp. 335-361 (2018)
2. 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)
3. F. Simini, A. Maritan and **Z. Néda**, *Human mobility in a Continuum Approach*, **PLOS One**, vol. 8, e60069 (2013)
4. E. Balogh, I. Simonsen, B.Z. Nagy and **Z. Néda**, *Persistent collective trend in stock markets*, **Physical Review E**, vol. 82, 066113 (2010)
5. F. Járjai-Szabó and **Z. Néda**, *On the size distribution of Poisson Voronoi cells*, **Physica A: Statistical Mechanics and its Applications**, vol. 385, pp. 518-526 (2007)
6. **Z. Néda**, K.-t. Leung, L. Jozsa and M. Ravasz; *Spiral cracks in drying precipitates*, **Phys. Rev. Lett.** vol. 88, 095502 (2002)
7. A. Nikitin, **Z. Néda** and T. Vicsek; *Collective Dynamics of two-mode stochastic oscillators*; **Phys. Rev. Lett.**, vol. 87, 024101 (2001)
8. K.-t. Leung, L. Jozsa, M. Ravasz and **Z. Néda**; *Spiral cracks without twisting*; **NATURE**, vol. 410, 166 (2001)
9. K.-t. Leung and **Z. Néda**; *Pattern formation and selection in quasi-static fracture*, **Phys. Rev. Lett.** vol. 85, 662 (2000)
10. **Z. Néda**, E. Ravasz, Y. Brechet, T. Vicsek and A.L. Barabasi; *The sound of many hands clapping*, **NATURE**, vol. 403, 849 (2000)

## b.) 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

## c.) Cărți și capitole de cărți

### Cărți

1. **Z. Néda**; **"Stochasztikus szimulációs 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
5. **Z. Néda** and M. Axinciuc, **Light: Paradigms for Scientific and Religious Thinking**, Zeta Books, 2019 (ISBN 978-606-697-084-6) 120 pagini

### Capitole cărți

1. Yves Brechet, Michel Perez, **Zoltán Néda**, Jean Charles Barbe, Luc Salvo, **Rheology of Concentrated Suspensions: A Lattice Model** (Chapter 33), in Continuum Scale Simulation of Engineering Materials: Fundamentals – Microstructures – Process Applications (Wiley-VCH Verlag GmbH & Co. KGaA. 2005) eds. Prof. Dr. Dierk Raabe, Dr. Franz Roters, Dr. Frédéric Barlat, Prof. Long-Qing Chen

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

**publicații ISI (WOS) fără proceedingsuri WOS indexate**

1. K. Dénes, B. Sándor and Z. Néda, Synchronization patterns in rings of time-delayed Kuramoto oscillators, **Communications in Nonlinear Science and Numerical Simulation**, vol. 93, UNSP 105505 (2020)
2. T.S. Biro and Z. Néda; *Gintropy: Gini Index Based Generalization of Entropy*, **Entropy**, vol. 22, 879 (2020)
3. 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)
4. T.S. Biró. A. Telcs and Z. Néda, *Entropic divergence and Entropy Related to Nonlinear Master Equations*, **Entropy**, vol. 21, 993 (2019)
5. 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)
6. 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)
7. K. Dénes, B. Sándor and Z. Néda, *On the predictability of the final state in a ring of Kuramoto oscillators*, **Romanian Reports in Physics**, vol. 71, 108 (2019)
8. 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)
9. T.S. Biró and Z. Néda; *Unidirectional random growth with resetting*, **Physica A: Statistical Mechanics and its Applications**, Vol. 499, pp. 335-361 (2018)
10. T.S. Biró. A. Telcs and Z. Néda; *Entropic Distance for Nonlinear Master Equation*, **UNIVERSE**, Vol. 4, pp. 10 (2018)
11. L. Varga, G. Tóth and Z. Néda, *Commuting patterns: the flow and jump model and supporting data*, **EPJ Data Science**, vol. 7, 37 (2018)
12. Z. Néda, F. Járari-Szabó and Sz. Boda, *Cell-size distribution and scaling in a one-dimensional Kolmogorov-Johnson-Mehl-Avrami lattice model with continuous nucleation*, **Physical Review E**, vol. 96, pp. 042145 (2017)
13. Z. Néda, L. Varga and T.S. Biró, *Science and Facebook: The same popularity law!*, **Plos One**, vol. 12, pp. e0179656 (2017)
14. T. Biró and Z. Néda, *Equilibrium distributions in entropy driven balanced processes*, **Physica A: Statistical Mechanics and its Applications**, vol. 474, pp. 355-362 (2017)
15. T. Biró and Z. Néda, *Dynamical stationarity as a result of sustained growth*, **Physical Review E**, vol. 95, pp. 032130 (2017)
16. 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)
17. S. Bulcsú, I. Simonsen, Zs. B. Nagy and Z. Néda, *Time-scale effects on the gain-loss asymmetry in stock indices*, **Physical Review E**, vol. 94, pp. 022311 (2016)
18. 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)
19. L. Varga, A. Kovács, G. Tóth, I. Papp and Z. Néda, *Further we travel the faster we go*, **PLOS ONE**, vol. 11, art. Number e0148913 (2016)
20. 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)
21. Sz. Boda. L. Davidova, Z. Néda; *Order and disorder in coupled metronome systems*, **European Physical Journal – ST**, vol. 233, pp. 649-663 (2014)
22. 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)
23. 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)
24. 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)

25. 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)
26. Sz. Boda, **Z. Néda**, B. Tyukodi and A. Tunyagi, *The rhythm of coupled metronomes*, **European Physical Journal B**, vol. 86, 263 (2013)
27. B. Sándor, F. Járαι-Szabó, T. Tél and **Z. Néda**, *Chaos on the conveyor belt*, **Physical Review E**, vol. 87, 042920 (2013)
28. 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)
29. D.J. Wang, **Z. Néda** and L.P. Csernai, *Viscous potential flow analysis of peripheral heavy ion collisions*, **Physical Review C**, vol. 87, 024908 (2013)
30. F. Simini, A. Maritan and **Z. Néda**, *Human mobility in a Continuum Approach*, **PLOS One**, vol. 8, e60069 (2013)
31. 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)
32. Z. Sárkőzi, E. Káptalan, **Z. Néda**, S. Boda, A. Tunyagi and T. Roska, *Optimization induced collective behavior in a system of flashing oscillators*, **International Journal of Bifurcation and Chaos**, vol. 22, 1230002 (2012)
33. L. P. Csernai, G. Mocanu and **Z. Néda**; *Fluctuations in hadronizing quark-gluon plasma*, **Physical Review C**, vol. 85, pp. 068201 (2012)
34. R. Deák and **Z. Néda**; *Kinetic Monte Carlo approach for triangular-shaped Pt islands on Pt(111) surfaces*, **Physica Status Solidi B**, vol. 249, pp. 1709-1716 (2012)
35. A. Derzsi and **Z. Néda**; *A seed diffusion model for tropical tree diversity patterns*, **Physica A: Statistical Mechanics and its Applications**, vol. 391, pp. 4798-4806, (2012)
36. F. Járαι-Szabó and **Z. Néda**; *Earthquake models describes traffic jams caused by imperfect driving styles*, **Physica A: Statistical Mechanics and its Applications**, vol. 391, pp. 5727-5738 (2012)
37. N. Derzsi, **Z. Néda** and M.A. Santos; *Income distribution patterns from a complete social security database*, **Physica A: Statistical Mechanics and its Applications**, vol. 391, pp. 5611-5619 (2012)
38. F. Járαι-Szabó and **Z. Néda**; *Winning strategies in congested traffic*, **Int. J. of Modern Physics C**, vol. 23, pp. 1250063 (2012)
39. E.A. Horvát, F. Járαι-Szabó, Y. Brechet and **Z. Néda**; *Spring-block approach for crack patterns in glass*, **Central European Journal of Physics**, vol. 10, pp. 926-935 (2012)
40. 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)
41. F. Járαι-Szabó, E.A. Horvát, R. Vajtai and **Z. Néda**; *Spring-block approach for nanobristle patterns*, **Chem. Phys. Lett.**, vol. 511, pp. 378-383 (2011)
42. F. Járαι-Szabó, B. Sándor and **Z. Néda**; *Spring-block model for a single-lane highway traffic*, **Central European Journal of Physics**, vol. 9, pp. 1002-1009 (2011)
43. A. Derzsi, N. Derzsy, E. Káptalan and **Z. Néda**; *Topology of the Erasmus student mobility network*, **Physica A: Statistical Mechanics and its Applications**, vol. 390, pp. 2601-2610 (2011)
44. G. Mate, **Z. Néda** and J. Benedek, *Spring-Block model reveals region-like structures*, **PLOS ONE**, vol. 6, e16518 (2011)
45. E. Balogh, I. Simonsen, B.Z. Nagy and **Z. Néda**, *Persistent collective trend in stock markets*, **Physical Review E**, vol. 82, 066113 (2010)
46. K.T. Leung and **Z. Néda**, *Criticality and pattern formation in fracture by residual stresses*, **Physical Review E**, vol. 82, 046118 (2010)
47. 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)
48. A.E. Horváth, F. Járαι-Szabó, G. Kaptay, R. Vajtai and **Z. Néda**, *Pattern formation and selection in nanotube arrays*, **Univ. Politehnica of Bucharest Scientific Bulletin, Series A, Applied Mathematics and Physics**, vol. 72, pp. 27-32 (2010)
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