

## PERSONAL INFORMATION

## George Alexandru Nemnes

 405 Atomistilor, 077125, Magurele-Ilfov, Romania



 alexandru.nemnes@nipne.ro



Gender Male | Date of birth 11/02/1980 | Nationality Romanian

## WORK EXPERIENCE

## 2016 Scientific Researcher III

Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering (IFIN-HH), Department of Computational Physics and Information Technologies, 077125 Magurele-Ilfov, Romania

- Research activities: computational methods for bio-applications; advanced statistical methods.

Business or sector Research

## 2009 - 2016 Lecturer and Scientific Researcher III

University of Bucharest, Faculty of Physics, "Materials and Devices for Electronics and Optoelectronics Research Center", 077125 Magurele-Ilfov, Romania

- Teaching activities: Solid State Physics, Magnetism – Spintronics, Parallel Architectures, Computing systems.
- Research activities: physics of semiconductors; transport in nanostructures; molecular electronics; density functional theory (DFT) calculations.

Business or sector Teaching and research

## 2011 – 2015 Research assistant

Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering (IFIN-HH), Department of Theoretical Physics, 077125 Magurele-Ilfov, Romania

- Research activities: physics of nanodetectors; advanced statistical methods.
- Project: PN-II-ID-PCE-2011-3-0960

Business or sector Research

## 2004 - 2008 PhD student, Researcher

Technical University Chemnitz, D-09107 Chemnitz, Germany

- Research activities: PhD thesis "Sampling procedures for low temperature dynamics on complex energy landscapes".

Business or sector Research

## EDUCATION AND TRAINING

## 2004 - 2008 PhD degree

Technical University Chemnitz, D-09107 Chemnitz, Germany

- Dynamics of complex systems; spin glasses; parallel computing; computational physics.

1998 - 2003 **Diplomate Engineer**

University of Bucharest, Faculty of Physics, Romania (during 2001-2003 student at Brandenburg Technical University)

- Solid State Physics.

2001 - 2003 **Physicist**

Brandenburg Technical University, Germany

- Theoretical physics; semiconductor physics; semiconductor devices; transport properties of nanotransistors.

PERSONAL SKILLS

Mother tongue(s) Romanian

Other language(s)

|         | UNDERSTANDING |         | SPEAKING           |                   | WRITING |
|---------|---------------|---------|--------------------|-------------------|---------|
|         | Listening     | Reading | Spoken interaction | Spoken production |         |
| English | C2            | C2      | C2                 | C2                | C2      |
| German  | C1            | C1      | B1                 | B1                | B1      |

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user  
Common European Framework of Reference for Languages

Communication skills ■ Interaction with Bsc, MSc, PhD students: good communication skills gained through my experience as lecturer, Bsc and Msc thesis coordinator.  
■ Collaborations with scientists in different institutions.

Organisational / managerial skills Project manager of PN-II-RU-RP1/September2008 and PN-II-RU-PD-2011-3-0044. Member in other national and international projects.

Job-related skills My research activity is focused on electrical and thermal transport properties of nanodevices, applications of fractional exclusion statistics to interacting particle systems and DFT-based description of semiconductor and molecular systems.

Computer skills C/C++ programming (scientific applications); paralel programming (MPI); computer cluster administration; Linux/Windows operating systems.

Driving licence Category B vehicles

ADDITIONAL INFORMATION

Publications ■ 30 ISI papers, 3 ISI Proceedings, 1 book chapter (P>16; I>7; C>20)

Projects ■ Projects won in competition: PN-II-RU-RP1/September2008 and PN-II-RU-PD-2011-3-0044 with total budget > 160 000 EUR; computing time through FP7 project HP-SEE (contract 261499).

Conferences ■ Seminar at Reykjavik University: "Self-consistent potentials and I-V characteristics of cylindrical nanowire transistors".

Seminars ■ Romanian Representative in the COST Action MP 1209 "Thermodynamics in the quantum regime"

Honours and awards ■ President of the "Computational and Mathematical Physics" section of the Romanian Society of Physics (SRF).

Memberships ■ Participations at prestigious conferences like: APS March Meeting, Baltimore, 2013; MRS Spring Meeting, San Francisco, 2013; International Conference on Magnetism (ICM), Busan, South Korea, 2012; E-MRS (2010, 2012, 2014).

References

ANNEXES

- List of publications.

## LISTA DE LUCRĂRI

1. P.N. Racec\*, E.R. Racec, **G.A. Nemnes** and U. Wulf, “*Coherent leakage current in mesoscopic MIS-type capacitors*”, Mater. Sci. Semicond. Process. 6, 129 (2003) AIS: 0.32
2. **G.A. Nemnes**, U. Wulf\* and P.N. Racec, “*Nanoscale transistors in the Landauer-Büttiker formalism*”, J. Appl. Phys. 96, 596-604 (2004) AIS: 1.2
3. **G.A. Nemnes**, U. Wulf\* and P.N. Racec, “*Nonlinear I-V characteristics of nanotransistors in the Landauer-Büttiker formalism*”, J. Appl. Phys. 98, 084308 (2005) AIS: 1.2
4. **G.A. Nemnes\*** and K.H. Hoffmann, “*Dynamically relevant structural properties of short-range spin glasses and disordered ferromagnets*”, Phys. Rev. B 77, 172410 (2008) AIS: 1.3
5. **G.A. Nemnes\*** and K.H. Hoffmann, “*Spin-box algorithm for low temperature dynamics of short range disordered Ising spin systems*”, Comp. Phys. Comm. 180, 1098 (2009) AIS: 0.9
6. **G.A. Nemnes\***, L. Ion and S. Antohe, “*Self-consistent potentials and linear regime conductance of cylindrical nanowire transistors in the R-matrix formalism*”, J. Appl. Phys. 106, 113714 (2009) AIS: 0.9
7. **G.A. Nemnes\***, L. Ion and S. Antohe, “*Thermo-electrical properties of nanostructured ballistic nanowires in the R-matrix formalism using the Implicitly Restarted Arnoldi Method*”, Physica E 42, 1613 (2010) AIS: 0.4
8. **G.A. Nemnes\***, D. V. Anghel, “*Stochastic simulations for the time evolution of systems which obey generalized statistics: Fractional exclusion statistics and Gentile's statistics*”, J. Stat. Mech. P09011 (2010) AIS: 1.1
9. **G.A. Nemnes\***, U. Wulf, L. Ion and S. Antohe, “*Ballistic transistors: From planar to cylindrical nanowire transistors*”, Trends in nanophysics, Springer (2010), book chapter, ISBN 978-3-642-12069-5 (2010) no AIS
10. L. Ion\*, **G.A. Nemnes**, C. Visan, D.E.N. Brancus, S. Antohe, “*Electron-optical phonon interaction in core-shell nanocolumn heterostructures made of wurtzite-type materials*”, Dig. J.

Nanomater. Biostruct. 6, 331 (2011) AIS: 0.2

11. T.L. Mitran, Adela Nicolaev, **G.A. Nemnes\***, L. Ion, S. Antohe, “*Ab initio vibrational and thermal properties of AlN nanowires under axial stress*”, Comput. Mat. Sci. 50, 2955 (2011)

AIS: 0.6

12. C. Visan, T.L. Mitran, Adela Nicolaev, **G.A. Nemnes**, L. Ion, S. Antohe\*, “*Ab initio study of point-like defects influence on charge transport in AlN nanowires*”, Dig. J.

Nanomater. Biostruct. 6, 1173 (2011) AIS: 0.2

13. **G.A. Nemnes\***, C. Visan, S. Antohe, “*Thermopower of atomic-sized wurtzite AlN wires*”, Physica E 44, 1092 (2012) AIS: 0.4

14. Adela Nicolaev, T.L. Mitran, **G.A. Nemnes**, L. Ion\*, S. Antohe, “*Ab-initio investigation of point-like defects in AlN nanowires*”, J. Phys.: Conf. Series 338, 012014 (2012) no AIS

15. **G.A. Nemnes\***, A. Manolescu, V. Gudmundsson, “*Reduction of ballistic spin scattering in a spin-FET using stray electric fields*”, J. Phys.: Conf. Series 338, 012012 (2012) no AIS

16. T.L. Mitran, Adela Nicolaev, **G.A. Nemnes\***, L. Ion, S. Antohe, “*Magnetic behavior and clustering effects in Mn-doped boron nitride sheets*”, J. Phys.: Condens. Matter 24, 326003 (2012)

AIS: 1.0

17. **G.A. Nemnes\***, “*Spin current switching and spin-filtering effects in Mn-doped boron nitride nanoribbons*”, J. Nanomater. 748639 (2012) AIS: 0.4

18. **G.A. Nemnes\*** and D.V. Anghel, “*Fractional exclusion statistics in systems with localized states*”, J. Phys.: Conf. Series 410, 012120 (2013) no AIS

19. **G.A. Nemnes\***, “*Spin filtering effects in wurtzite and graphite-like AlN nanowires with Mn impurities*”, J. Nanomater. 408475 (2013) AIS: 0.4 (2013)

20. **G.A. Nemnes\*** and S. Antohe, “*Spin filtering in graphene nanoribbons with Mn-doped boron nitride inclusions*”, Mater. Sci. Eng. B 178, 1347 (2013) AIS: 0.5 (2013)

21. D.V. Anghel\*, **G.A. Nemnes** and F. Gulminelli, “*Equivalence between fractional exclusion statistics and self-consistent mean-field theory in interacting particle systems in any number of dimensions*”, Phys. Rev. E 88, 042150 (2013) AIS: 0.9 (2013)
22. **G.A. Nemnes\*** and C. Visan, “*Ab initio investigation of spin-filter effects in GaN nanowires with transitional metal impurities*”, Eur. Phys. J. Plus 128, 131 (2013) AIS : 0.4 (2013)
23. **G.A. Nemnes\*** and D.V. Anghel, “*Fractional exclusion statistics in disordered interacting particle systems*”, Rom. Rep. Phys. 66, 336 (2014) AIS: 0.13 (2013)
24. **G.A. Nemnes\*** and Adela Nicolaev, “*Transport in ferrocene single molecules for terahertz applications*”, Phys. Chem. Chem. Phys. 16, 18478 (2014) AIS: 1.2 (2013)
25. T. L. Mitran, **G. A. Nemnes**, L. Ion and Daniela Dragoman\*, “*Effects of graded distribution of scattering centers on ballistic transport*”, J. Appl. Phys. 116, 124316 (2014) AIS: 0.7 (2013)
26. A. E. Stanciu, **G. A. Nemnes\***, A. Manolescu, “*Thermoelectric effects in nanostructured quantum wires in the non-linear temperature regime*”, Rom. J. Phys. 60, 716 (2015) AIS: 0.12 (2013)
27. A. A. Nila, **G. A. Nemnes\***, A. Manolescu, “*Ab initio investigation of optical properties in triangular graphene - boron nitride core-shell nanostructures*”, Rom. J. Phys. 60, 696 (2015) AIS: 0.12 (2013)
28. **G. A. Nemnes\*** and Sorina Iftimie, “*Charge localization effects and transport in dendritic nanostructures for photovoltaic applications*”, Appl. Surf. Sci. 352, 158 (2015) AIS: 0.6 (2013)
29. **G. A. Nemnes\*** and D. V. Anghel, “*Glassy Behavior of Disordered Fractional Exclusion Statistics Systems*”, Rom. J. Phys. 60, 691 (2015) AIS: 0.12 (2013)
30. **G. A. Nemnes\*** and Camelia Visan, “*Electron transport properties of fulgide-based photochromic switches*”, RSC Advances 5, 26438 (2015) AIS: 0.7 (2013)
31. **G. A. Nemnes\*** and Camelia Visan, “*Ab initio vibrational and thermal properties of carbon allotropes: polycyclic and rectangular networks*”, Comput. Mat. Sci. 109, 14 (2015) AIS: 0.6 (2013)

32. C. Goehry, **G. A. Nemnes** and Andrei Manolescu\*, “*Collective Behavior of Molecular Dipoles in  $CH_3NH_3PbI_3$* ”, J. Phys. Chem. C 119, 19674 (2015) AIS: 1.2 (2013)

33. Adela Nicolaev, T. L. Mitran, Sorina Iftimie, **G. A. Nemnes\***,  
“*Optimization of halide perovskite solar cells based on nanocolumnar  $ZnO$* ”,  
Sol. Energy Mater. Sol. Cells (doi:10.1016/j.solmat.2015.10.023, 2015) AIS: 1.3 (2013)

34. **G. A. Nemnes\***, C. Goehry, T. L. Mitran, Adela Nicolaev, L. Ion, S. Antohe, N. Plugaru, A. Manolescu, “*Band alignment and charge transfer in rutile- $TiO_2/CH_3NH_3PbI_{3-x}Cl_x$  interfaces*”,  
Phys. Chem. Chem. Phys. 17, 30417 (2015) AIS: 1.2 (2013)

**Notă:**

- (\*) : autor corespondent;
- AIS : [www.eigenfactor.org](http://www.eigenfactor.org)