europass Curriculum Vitae

PERSONAL INFORMATION

István - Ferenc TÓTH

Horea st. 2/5, Cluj-Napoca, 400038, Romania

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Istvan.toth@phys.ubbcluj.ro; nevenincs@yahoo.com

Social status: Married

Sex Male | Date of birth 04/06/1980 | Nationality: Romanian

POSITION

Physicist

WORK EXPERIENCE

01.11.2011 - present
01.04.2010 - 01.10.2010
01.01.2009 - 31.09.2009

Research assistant

Babes-Bolyai University, Faculty of Physics

- Responsibilities: research and didactical activities, grant management

Business or sector Education

1.10.2013 - 1.10.2014

Director of a grant for young researchers

Babes-Bolyai University, Faculty of Physics

- Responsibilities: research activities, grant management

Business or sector Education

1.09.2010 - 1.09.2012

Postdoctoral fellow (POSDRU fellowship)

Babes-Bolyai University, Faculty of Physics

- Responsibilities: research and didactical activities, grant management

Business or sector Education

1.10.2005 - 13.09.2009

PhD fellow

Babes-Bolyai University, Faculty of Physics

- Responsibilities: research and didactical activities, grant management

Business or sector Education

EDUCATION AND TRAINING

2010 - 2012

Postdoctorate

Babes-Bolyai University, Faculty of Physics - Cluj-Napoca

- Theme/title: The interaction of atomic systems with charged particles

2005 - 2009

PhD - Physics

Babes-Bolyai University, Faculty of Physics - Cluj-Napoca

- Theme/title: Ionization of molecules by positron and electron impact

2005 - 2009

MSc - Computational Physics

Babes-Bolyai University, Faculty of Physics - Cluj-Napoca

- Selected courses: Numerical calculations in atomic physics, Stochastic simulation methods in statistical physics with interdisciplinary application, Symbolic calculations in physics, Calculation of molecular properties, Application of object oriented programming methods in physics, Molecular structure and dynamics simulations

1999 - 2003

BSc - Physics

Babes-Bolyai University, Faculty of Physics - Cluj-Napoca

- Selected courses: Mechanics, Electricity and magnetism, Thermodynamics, Optics, Analytical mechanics, Electronics, Quantum mechanics, Atomic physics, Molecular physics, Nuclear physics, Statistical physics, Electrodynamics, Plasma physics, Solid state physics, Spectroscopy, Superconductivity, Elementary particles, Numerical methods in atomic physics, Chemistry, Mathematics

1995 - 1999 **Baccalaureate - High school**

Mircea Eliade High School - Sighisoara

PERSONAL SKILLS

Mother tongue(s): Hungarian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
Romanian	C2	C2	C2	C2	C2
English	C1	C1	B2/C1	B2/C1	C1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
Common European Framework of Reference for Languages

Communication skills

- good communication skills gained through my teaching experience and through presentations

Teaching / Organisational skills

- **Pedagogical activities (HU)**
  Course: Computer science for physicists
  Seminar/Laboratory: Computer science for physicists, Utilisation of the computer in physics, Electricity and magnetism, Optics, Mechanics , Elementary particles, Atomic and molecular physics, Nuclear physics
- **Pedagogical activities (EN)**
  Laboratory: Complex systems and networks
- **Conference organization**
  - I have participated in the organization of the 4th CEPAS (Conference on Elementary Processes in Atomic Systems) international conference , June 18-20, 2008, Cluj-Napoca
  - Member in the organizing comitte of the conference COST Action CUSPFEL, March 21-23, 2012

Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Proficient user	Proficient user	Proficient user	Independent user	Proficient user

Levels: Basic user - Independent user - Proficient user
Digital competences - Self-assessment grid

- good command of Microsoft Office suite (word processor, spread sheet, presentation software)
- experience with Windows and Linux (Ubuntu) operating systems
- good command of LaTex (high quality typesetting system)
- Fortran programming (used extensively – research related programming – mostly application of numerical methods)
- C programming (few years experience, but mostly in the past)
- Python programming (moderate experience)
- basic object oriented programming skills

Driving licence I do not have a driving license

ANNEXES

ISI articles indexed in Web of Science with impact factor

1. Triple-differential cross sections for the ionization of NH_3 by positron impact
I. Toth, L. Nagy, R. I. Campeanu
Eur. Phys. J. D 70 (2016) 170
ISI impact factor (2016): 1.288

2. Ionization of NH_3 and CH_4 by electron impact
I. Toth, R. I. Campeanu, L. Nagy
Eur. Phys. J. D 69 (2015) 2
ISI impact factor (2014): 1.228

3. Triple differential cross sections for the ionization of water by electron impact
I. Toth, R. I. Campeanu, L. Nagy
Eur. Phys. J. D 68 (2014) 369
ISI impact factor (2014): 1.228

4. CDW-EIS calculation for ionization and fragmentation of methane impacted by fast protons
L. Gulyas, **I. Toth**, L. Nagy
J. Phys. B: Mol. Opt. Phys. 46 (2013) 075201
ISI impact factor (2013): 1.916

5. TDCS calculations for the ionization of H_2 by electron impact
I. Toth, L. Nagy, V. Chis, L. Gulyas
Eur. Phys. J. D 66 (2012) 313
ISI impact factor (2012): 1.513

6. Triple differential cross sections for the ionization of water by electron and positron impact
I. Toth, R. I. Campeanu, L. Nagy
Eur. Phys. J. D 66: 21 (2012)
ISI impact factor (2012): 1.513

7. Ionization of molecular nitrogen by electron impact in (e, 2e) processes
I. Toth, L. Nagy
J. Phys. B: Mol. Opt. Phys. 44 (2011) 195205
ISI impact factor (2011): 1.875

8. Triple-differential cross-section calculations for the ionization of CH_4 by electron impact
I. Toth, L. Nagy
J. Phys. B: Mol. Opt. Phys. 43 (2010) 135204
ISI impact factor (2010): 1.902

9. Distorted-wave Born approximation for the ionization of molecules by positron and electron impact,
I. Toth, R. I. Campeanu, V. Chis, L. Nagy
Nucl. Instrum. Methods B 267 (2009) 362
ISI impact factor (2009): 1.156

10. Electron impact ionization of diatomic molecules
I. Toth, R. I. Campeanu, V. Chis, L. Nagy
Eur. Phys. J. D 48 (2008) 351
ISI impact factor (2008): 1.397

11. Screening effects in the ionization of molecules by positrons
I. Toth, R. I. Campeanu, V. Chis, L. Nagy
Phys. Lett. A 360 (2006) 131
ISI impact factor (2006): 1.468

ISI articles indexed in Web of Science without impact factor

1. Theoretical investigation of water ionization by electron impact at low energies
I. Toth, L. Nagy
Journal of Physics Conference Series, 875 (2017) 062027

2. Positron and electron impact ionization of H2O for coplanar and non-coplanar geometries
I. Toth, L. Nagy
Journal of Physics: Conference Series, 635 (2015) 072046

3. Ionization of water by electron impact in (e, 2e) processes
L. Nagy, I. Toth
Journal of Physics: Conference Series, 488 (2014) 052013

4. Triple differential cross section calculations for the ionization of molecular nitrogen by electron impact
I. Toth, L. Nagy
Journal of Physics: Conference Series, 388 (2012) 052032

5. Ionization of the water molecule by electron and positron impact
I. Toth, R. I. Campeanu, L. Nagy
Journal of Physics Conference Series, 199 (2010) 012018

Other articles

1. The effect of the projectile's charge on the ionization of N_2 by electron and positron impact
I. Toth, L. Nagy
Studia Universitatis Babes-Bolyai – Physica, LVI 2 (2011) 155

2. Calculated Totally Differential Cross Sections for the Ionization of Helium by Electron Impact
A. Toth, **I. Toth**, L. Nagy
Studia Universitatis Babes-Bolyai – Physica, LIV 2 (2009) 89

3. DWBA calculations for positron impact ionization of O_2
I. Toth, R. I. Campeanu, V. Chis, L. Nagy
Studia Universitatis Babes-Bolyai – Physica, LI 2 (2006) 45

4. Molekulák pozitronnal történő ionizációja
I. Toth, R. I. Campeanu, V. Chis, L. Nagy
Muszaki Szemle (Revista Tehnica), 41 (2008) 29

Conferences

1. Theoretical investigation of water ionization by electron impact at low energies
I. Toth, L. Nagy
ICPEAC 2017: XXX International Conference on Photonic, Electronic and Atomic Collisions
26 July – 1 August 2017, Cairns, Australia

2. Coplanar (e, 2e) ionization of CH4 at 250 eV impact energy
I. Toth, L. Nagy
ECAMP12: 12th European Conference on Atoms Molecules and Photons
5 - 9 September 2016, Frankfurt, Germany

3. Positron and electron impact ionization of H_2O for coplanar and non-coplanar geometries
I. Toth, L. Nagy
ICPEAC 2015: XXVIII International Conference on Photonic, Electronic and Atomic Collisions
22-28 July 2015, Toledo, Spain

4. Triple differential cross sections for the ionization of NH_3 by positron impact
L. Nagy, **I. Toth**, R. I. Campeanu
POSMOL 2015: XVIII International Workshop on Low-Energy Positron and Positronium Physics
17-20 July, Lisabon, Portugal

5. Ionization of water by electron impact
L. Nagy, **I. Toth,** R. I. Campeanu
CEPAS 2014: 6th Conference on Elementary Processes in Atomic Systems
9-12July 2014, Bratislava, Slovakia

6. Electron impact (e, 2e) ionization of NH_3 and CH_4
I. Toth, L. Nagy, R. I. Campeanu
CEPAS 2014: 6th Conference on Elementary Processes in Atomic Systems
9-12July 2014, Bratislava, Slovakia

7. Ionization of water by electron impact in (e; 2e) processes
L. Nagy, **I. Toth**
ICPEAC 2013: XXVIII International Conference on Photonic, Electronic and Atomic Collisions
24-30 July 2013, Lanzhou, China

8. Ionization and fragmentation of methane by fast proton projectiles
I. Toth, L. Gulyas, L. Nagy
Ecamp11: The 11th European Conference on Atoms, Molecules And Photons
24-28 June 2013, Aarhus, Denmark
Poster

9. Fully differential cross section calculations for electron impact ionization of methane
I. Toth, L. Nagy
Ecamp11: The 11th European Conference on Atoms, Molecules And Photons
24-28 June 2013, Aarhus, Denmark
Poster

10. Ionization of H2 by electron impact in the scattering and perpendicular plane
I. Toth, L. Nagy
Physics Conference TIM-12
27-30 November 2012, Timisoara, Romania
Poster

11. (e, 2e) ionization of molecular hydrogen
I. Toth, L. Nagy
EGAS 44: 44th Conference of the European Group on Atomic Systems
9-13 July 2012, Gothenburg, Sweden
Poster

12. A comparative study of positron and electron impact ionization of molecular nitrogen
I. Toth, L. Nagy
Physics Conference TIM-11
24-27 November 2011, Timisoara, Romania
Poster

13. Triple differential cross section calculations for the ionization of molecular nitrogen by electron impact
I. Toth, L. Nagy
ICPEAC 2011: XXVII International Conference on Photonic, Electronic and Atomic Collisions
27 July - 2 August 2011, Belfast, Northern Ireland, UK
Poster

14. Triple differential cross sections for the ionization of water by electron and positron impact
I. Toth, R. I. Campeanu, L. Nagy
POSMOL 2011: XVI Workshop on Low Energy Positron and Positronium Physics
22 - 25 July 2011, Maynooth, Ireland
Poster

15. Ionization of the water molecule by positron and electron impact
I. Toth, R. I. Campeanu, V. Chis, L. Nagy
POSMOL 2009: XV International Workshop on Low Energy Positron and Positronium Physics
29 July – 1 August 2009, Toronto, Canada
Poster

16. Ionization of molecules by positron and electron impact
I. Toth, R. I. Campeanu, V. Chis, L. Nagy
CEPAS 2008: 4th Conference on Elementary Processes in Atomic Systems

18-20 June 2008, Cluj-Napoca, Romania
Poster

17. Dwba calculations for positron impact ionization of molecules
I. Toth, R. I. Campeanu, V. Chis, L. Nagy
ICPEAC 2007: XXV International Conference on Photonic, Electronic and Atomic Collisions
25-31 July 2007, Freiburg, Germany
Poster

18. Molekulák pozitronnal történő ionizációja (Ionization of molecules by positron impact)
I. Toth, R. I. Campeanu, V. Chis, L. Nagy
Computational Methods in Modern Physics International Conference
2-5 November 2006, Cluj-Napoca, Romania
Oral presentation

19. Screening effects in the ionization of molecules by positrons
L. Nagy, **I. Toth**, R. I. Campeanu, V. Chis, A. Stauffer
EGAS 38: 38th Conference of the European Group on Atomic Systems
7-10 June 2006, Ischia, Italy
Poster

Research projects (member or director)

Ongoing:

1. Modelling countinuous dynamical systems by state transition networks: a new perspective on the analysis of neuronal signals (Sisteme dinamice continue modelate prin rețele de tranziție de stare: o nouă perspectivă asupra analizei semnalelor neuronale)
   2018-2020, TE GRANT, PN-III-P1-1.1-TE-2016-1457
   Director: dr. Maria-Magdolna Ercsey-Ravasz, Babes-Bolyai University, Cluj Napoca
   Member

2. Comparative Investigation of the Cortical Circuits in Mouse, NHP and Human (Investigație comparativă a circuitelor corticale în șoareci, primate și oameni)
   2018-2020, ERANET, COFUND-FLAGERA II-CORTICITY
   Director: dr. Maria-Magdolna Ercsey-Ravasz, Babes-Bolyai University, Cluj Napoca
   Member

Finalized:

1. Developing an optimal scientometric indicator
   2016-2018, BRIDGE GRANT, PN-III-P2-2.1-BG-2016-0252
   Director: dr. Maria-Magdolna Ercsey-Ravasz, Babes-Bolyai University, Cluj Napoca
   Member

2. Interaction of atoms and molecules with laser pulses and charged particles
   2011-2016, CNCS UEFISCDI, PN-II-ID-PCE-2011-3-0192
   Director: Prof. dr. Ladislau Nagy, Babes-Bolyai University - Cluj Napoca
   Member

3. Electronic transitions in atoms and molecules in interaction with charged particles and laser fields
   2007-2010, CNCSIS (PNII – IDEI), ID_539
   Director: Prof. dr. Ladislau Nagy, Babes-Bolyai University - Cluj Napoca
   Member

4. Ionization of molecules by short laser pulses, interference effects
   2007-2008, Romanian Academy
   Director: Prof. dr. Ladislau Nagy, Babes-Bolyai University - Cluj Napoca
   Member

5. The study of physical processes in the plasma of an ECR ion source
   2006 -2007, institute of Research Programmes Sapientia - Cluj Napoca
   Director: Lect. dr. Janos Karacsony, Babes-Bolyai University - Cluj Napoca
   Member

6. The study of the dinamycs of nanostructured systems, electronic transitions, quantum effects
   2005-2007, CNCSIS
   Director: Prof. dr. Ladislau Nagy, Babes-Bolyai University - Cluj Napoca
   Member

7. Ionization of NH_3 and CH_4 molecules by electron and positron impact. Kinematically complete processes.
   2013-2014, GTC_34032/2013
   Director: dr. István Ferenc Tóth

8. Postdoctorate research project
   Title: Interaction of atomic systems with charged particles
   Programme: Molecular and nanostructured systems: Interactions with biological environments and electromagnetic radiations
   2010-2012, POSDRU/89/1.5/S/60189
   Director: dr. István Ferenc Tóth