

Curriculum Vitae

Personal information

First name(s) / Surname(s) **Violeta / Iancu**
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Nationality Romanian

Education and training

2006 PhD in Physics
Ohio University, Athens, Ohio, USA
Thesis: Single molecule switches and molecular self-assembly: Low temperature STM investigations and manipulations
2000 Diploma engineering in Physics
University of Bucharest, Romania
Applied nuclear physics

Work experience

2021 – present Research Scientist II
ELI-NP, Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering
30 Reactorului St, POBox MG-6, Bucharest-Magurele, 077125, Romania
2014 – 2021 Research Scientist III
ELI-NP, Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering
30 Reactorului St, POBox MG-6, Bucharest-Magurele, 077125, Romania
2009 – 2013 Postdoctoral Fellow
KU Leuven, Laboratorium voor Vaste - Stoffysica en Magnetisme, Celestijnenlaan 200D
B-3001 Leuven, Belgium
2007 – 2009 Postdoctoral research associate
The University of Tennessee, Department of Physics and Astronomy
Knoxville, Tennessee, TN 37996, USA
2001 – 2006 Research Assistant
Ohio University, Department of Physics and Astronomy, Athens, Ohio, OH 45701, USA
2000 – 2001 Teaching Assistant
Ohio University, Department of Physics and Astronomy, Athens, Ohio, OH 45701, USA

Personal skills and competences

Mother tongue(s) Romanian
Other language(s) English – full proficiency; French – basic

Computer skills and competences

Good command of Microsoft Office tools and of Linux environment tools; experience with Fortran and C/C++ programming, Origin; user knowledge of Quantum ESPRESSO and GEANT4.

Awards/Research Grants

- 2017 - 2019 ELI-RO project in collaboration with SC Accent Pro2000 SRL
Title: Security applications development at ELI-NP: detecting concealed threatening materials by using Nuclear Resonance Fluorescence and 2D/3D tomography with gamma beams / ELI_THREAT_DETECT
Awarded: 518 449 RON awarded/ 499 409 RON spent
- 2010 - 2013 FWO (Research Foundation – Flanders, Belgium) Post-doctoral fellowship
Title: Electronic and magnetic properties of metallized nanoporous molecular networks
Award/grant covered the salary plus extra 4000€/year as bench fee.
- 2004 – 2005 Clippinger Graduate Fellowship, Ohio University
Award covered one year of scholarship

Publications (selected)

1. G.V. Turturica, V. Iancu and C. A. Ur, A neural-network based approach to cargo inspections using photon spectroscopy, **Nucl Instrum and Methods in Physics Research A** **1010**, **165553** (2021).
2. G.V. Turturica, V. Iancu et al., Effective Z evaluation using monoenergetic gamma rays and neural networks, <https://doi.org/10.1140/epjp/s13360-020-00122-3>, **Eur J. Phys PLUS** **135:140** (2020).
3. K. Ali, H. Ohgaki, H. Zen, T. Kii, T. Hayakawa, T. Shizuma, H. Toyokawa, Y. Taira, **V. Iancu**, G. Turturica, C. A. Ur, M. Fujimoto, and M. Katoh, Selective Isotope CT Imaging Based on Nuclear Resonance Fluorescence Transmission Method, **IEEE Trans. Nucl. Sci.** **67**, **1976** (2020).
4. P.-A. Söderström, L. Capponi, **V. Iancu** et al. Unfolding of sparse high-energy γ -ray spectra from LaBr₃:Ce detectors, **JINST** **14 T11007** (2019).
5. G. V. Turturica, C. Matei, A. Pappalardo, D. L. Balabanski, S. Chesnevskaya, **V. Iancu** et al., Investigation of Compton scattering for gamma beam intensity measurements and perspectives at ELI-NP, **Nucl Instrum and Methods in Physics Research A** **921**, **27** (2019).
6. G. V. Turturica, **V. Iancu**, G. Suliman, C.A. Ur, Implementation of photon elastic scattering in GEANT4, **Nucl Instrum and Methods in Physics Research B** **436**, **68** (2018).
7. A.T. Ngo, T. Skeini, **V. Iancu**, P. R. Redfern, L. A. Curtiss, and S. W Hla, Manipulation of Origin of Life Molecules: Recognizing Single-Molecule Conformations in β -Carotene and Chlorophyll-a/ β -Carotene Clusters, **ACS Nano** **12**, **217** (2018).
8. **V. Iancu**, K. Schouteden, Z. Li and C. Van Haesendonck, Electron–phonon coupling in engineered magnetic molecules, **Chem. Commun.** **52**, **11359** (2016).
9. H.R. Weller, C.A. Ur, C. Matei, J.M. Mueller, M.H. Sikora, G. Suliman, **V. Iancu**, Z. Yasin, Gamma beam delivery and diagnostics, **Rom. Rep. Phys.** **68** **S447** (2016).
10. G. Suliman, **V. Iancu**, C.A. Ur, M. Iovea, I. Daito, H. Ohgaki, Gamma-beam industrial applications at ELI-NP, **Rom. Rep. Phys.** **68** **S799** (2016).

11. Y. Zhang, H. Kersell, R. Stefak, J. Echeverria, **V. Iancu**, U. G. E. Perera, Y. Li, A. Deshpande, K.-F. Braun, C. Joachim, G. Rapenne, and S.-W. Hla, Simultaneous and coordinated rotational switching of all molecular rotors in a network, *Nature Nanotech.* **11**, 706-12, DOI: 10.1038/NNANO.2016.69 (2016).
12. K. Schouteden, Ts. Ivanova, Z. Li, **V. Iancu**, E. Janssens, and C. Van Haesendonck, Probing Magnetism in 2D Molecular Networks after in Situ Metalation by Transition Metal Atoms, *J. Phys. Chem. Lett.* **6**, 1048 (2015).
13. Z. Li, K. Schouteden, **V. Iancu**, E. Janssens, P. Lievens, C. Van Haesendonck and J. I. Cerda, Chemically modified STM tips for atomic-resolution imaging of ultra thin NaCl films, *Nano Research* DOI 10.1007/s12274-015-0733-y (2015).
14. K. Schouteden, T. Ivanova, Z. Li, **V. Iancu**, K. Tahara, Y. Tobe, J. Adisojoso, S. De Feyter, C. Van Haesendonck and E. Janssens, Alkoxyated dehydrobenzo[12]annulene on Au(111): from single molecules to quantum dot molecular networks, *Chem. Commun.* **51**, 10917 (2015).
15. **V. Iancu**, K.-F. Braun, K. Schouteden and C. Van Haesendonck, Inducing magnetism in pure organic molecules by single magnetic atom doping, *Phys. Rev. Lett.* **113**, 106102 (2014).
16. K. Schouteden, Z. Li, **V. Iancu**, D. A. Muzychenko, E. Janssens, P. Lievens, and C. Van Haesendonck, Engineering the band structure of nanoparticles by an incommensurate cover layer, *J. Phys. Chem. C* **118**, 18271 (2014).
17. Z. Li, H. -Y. T. Chen, K. Schouteden, K. Lauwaet, L. Giordano, M. I. Trioni, E. Janssens, **V. Iancu**, C. Van Haesendonck, P. Lievens and G. Pacchioni, Self-doping of ultrathin insulating films by transition metal atoms, *Phys. Rev. Lett.* **112**, 026102 (2014).
18. **V. Iancu**, X.-G. Zhang, T.-H. Kim, L.D. Menard, P. R. C. Kent, M.E. Woodson, J.M. Ramsey, A.-P. Li, and H. H. Weitering, Polaronic transport and current blockades in epitaxial silicide nanowires and nanowire arrays, *Nano Lett.* **13**, 3684 (2013).
19. **V. Iancu**, P. R. C. Kent, S. Hus, H. Hu, C. G. Zeng, and H. H. Weitering, Structure and growth of quasi one-dimensional YSi₂ nanophases on Si(100), *J. Phys: Condens. Matter* **25**, 014011 (2013).
20. **V. Iancu**, K.-F. Braun, K. Schouteden and C. Van Haesendonck, Probing the electronic properties of trimesic acid nanoporous networks on Au(111), *Langmuir* **29**, 11593 (2013).
21. U. G. E. Perera, H. J. Kulik, **V. Iancu**, L. G. G. V. Dias da Silva, S. E. Ulloa, N. Marzari and S.-W. Hla, Spatially extended Kondo state in magnetic molecules induced by interfacial charge transfer, *Phys. Rev. Lett.* **105**, 106601 (2010).
22. W. Zhu , X. Qiu, **V. Iancu**, X.-Q. Chen, H. Pan, W. Wang, M. P. Paranthaman, H. H. Weitering, M. Stocks, N. Dimitrijevic, T. Rajh, H. M. Meyer, G. Eres, B. Gu, and Z. Zhang, Bandgap narrowing of titanium oxide semiconductors via non-compensated anion-cation codoping for enhanced visible-light photoactivity, *Phys. Rev. Lett.* **103**, 226401 (2009).
23. **V. Iancu**, P. R. C. Kent, C. G. Zeng, and H. H. Weitering, Structure of YSi₂ nanowires from tunneling spectroscopy and first principle, *Appl. Phys. Lett.* **95**, 123107 (2009).
24. F. Jäckel, G. Perera, **V. Iancu**, K.-F. Braun, N. Koch, J.P. Rabe, S.W. Hla, Investigating molecular charge transfer complexes with a low temperature scanning tunneling microscope, *Phys. Rev. Lett.* **100**, 126102 (2008).
25. **V. Iancu**, A. Deshpande, and S.-W. Hla, Manipulation of the Kondo effect via two-dimensional molecular assembly, *Phys. Rev. Lett.* **97**, 266603 (2006).
26. **V. Iancu** and S. -W. Hla, Realizing a four-step molecular switch in scanning tunneling microscope manipulation of single Chlorophyll-A molecules, *Proc. Nat. Acad. Sci.* **103**, 13718 (2006).

27. G. R. Newkome, P. Wang, C.N. Moorefield, T.J. Cho, P. Mohapatra, S.Li, S.-H. Hwang, O. Lukoyanova, L. Echegoyen, J.A. Palagallo, **V. Iancu**, S.-W. Hla, Nanoassembly of a new class of fractal polymers: synthesis and structure proof of a Sierpinski 'Hexagonal Gasket', **Science** **312**, 1782 (2006).
28. **V. Iancu**, A. Deshpande, and S. -W. Hla, Manipulating Kondo temperature via single molecule switching, **Nano Lett.** **6**, 820 (2006).
29. K.-F. Braun, **V. Iancu**, N. Pertaya, K.-H. Rieder, and S.-W. Hla, Decompositional, incommensurate growth of ferrocene molecules on a Au(111) surface, **Phys. Rev. Lett.** **96**, 246102 (2006).
30. S.-W. Hla, K.-F. Braun, **V. Iancu**, and A. Deshpande, Single-atom extraction by scanning tunneling microscope tip crash and nanoscale surface engineering, **Nano Lett.** **4**, 1997 (2004).

Conference Proceedings

- V. Iancu**, G. Suliman, G.V. Turturica, M. Iovea, I. Daito, H. Ohgaki, C. Matei, C. A. Ur, D.L. Balabanski, Brilliant gamma beams for industrial applications: new opportunities, new challenges, Journal of Physics: Conference Series 763, 012003 (2016)
- G. Suliman, **V. Iancu**, C.A Ur, M. Iovea, I. Daito, H. Ohgaki, Gamma Beam Industrial Applications at ELI-NP, Int. J. of Modern Physics: Conference Series 44, 166216-1-10 (2016).
- I. Daito, H. Ohgaki, G. Suliman, V Iancu, C. A. Ur, M Iovea, Simulation Study on Computer Tomography Imaging of Nuclear Distribution by Quasi Monoenergetic Gamma Rays with Nuclear Resonance Fluorescence: case study for ELI-NP application, Energy Procedia 89 389 – 394 (2016).
- C. A. Ur, D. Filipescu, I. Gheorghe, V. Iancu, G. Suliman, O. Tesileanu, Nuclear physics with advanced brilliant gamma beams at ELI-NP, **EPJ Web of Conferences** **107**, 01002 (2016). (5p)

Conferences/Presentations (selected)

- V. Iancu**, G. Suliman, G. V. Turturica, E. Hermann, M. Iovea, D. L. Balabanski, H. Ohgaki, C.A Ur, Nondestructive material inspections using brilliant quasi-monoenergetic gamma beams at ELI-NP, The 2017 International Conference on Applications of Nuclear Techniques, Crete 2017, contributed talk.
- G. Suliman, **V. Iancu**, C.A Ur, M. Iovea, I. Daito, H. Ohgaki, Gamma Beam Industrial Applications at ELI-NP, The 2015 International Conference on Applications of Nuclear Techniques, Crete 2015, contributed talk.
- V. Iancu**, K.-F. Braun, K. Schouteden, C. Van Haesendonck, Kondo effect in metal-organic charge-transfer systems, International Conference on Nanoscience + Technology, Paris 2012, contributed talk.
- V. Iancu**, K. Schouteden, C. Van Haesendonck, Porous molecular networks on metallic surfaces and their response to temperature and metallization, European Conference on Surface Science, Wroclaw 2011, contributed poster.

V. Iancu, Electronic and transport properties of surface supported nanostructures, Laboratory of Solid-State Physics and Magnetism (VSM), KU Leuven, January 2010, invited seminar.

V. Iancu, P.R.C Kent, T.-H. Kim, A.-P Li, L.D. Menard, M. Ramsey and H.H. Weitering, Electronic transport in YSi₂ nanowires, American Physical Society, March Meeting 2009, contributed talk.

V. Iancu, C. Zeng, S. Jesse, A.P. Baddorf, and H.H. Weitering, Transport studies on ultrathin silicide nanowires, American Physical Society, March Meeting 2008, contributed talk.

V. Iancu, A. Deshpande, S.-W. Hla, Manipulation of Kondo effect via two-dimensional molecular self-assembly, American Physical Society, March Meeting 2007, contributed talk.

V. Iancu, A. Deshpande, S.-W. Hla, Single molecule Kondo switch, American Physical Society, March Meeting 2006, contributed talk.