
Nevill Gonzalez Szwacki

ADDRESS:

Institute of Theoretical Physics
University of Warsaw
ul. Hoża 69
PL-00-681 Warszawa, POLAND

Fax: +48-22-6219475**E-mail:** gonz@fuw.edu.pl**WWW:** www.tsunano.org**BORN:** September 9, 1973**CITIZENSHIP:** Polish**LANGUAGES SPOKEN:** English, Polish (native), Spanish (native)

ACADEMICS

- *2010-present* – **Assistant Professor**, Institute of Theoretical Physics, Faculty of Physics, University of Warsaw
- *2004-2009* – **Robert A. Welch Postdoctoral Fellow**
 - Dept. of Physics, Texas Southern University, Houston, Texas (2008-2009)
 - Dept. of Physics, Texas Tech University, Lubbock, Texas (2006-2008)
 - Dept. of Mechanical Engineering & Material Science, Rice University, Houston, Texas (2004-2006)
- *2003-2006* – **Assistant Professor**, Institute of Physics, Polish Academy of Sciences, Warsaw
- *1998-2003* – **Ph.D.**, Institute of Physics, Polish Academy of Sciences, Warsaw. Graduation Date: June 2003. Dissertation title: Structural, electronic and optical properties of $\text{GaAs}_{1-x}\text{N}_x$ and $\text{Ga}_{1-x}\text{B}_x\text{As}$ alloys: calculations from first principles
- *1992-1998* – **M.S.**, Institute of Theoretical Physics, Faculty of Physics, University of Warsaw. Graduation Date: November 1998. Dissertation title: Three-dimensional tight-binding model accounting for the coupling between magnetic layers in EuTe/PbTe superlattices

RESEARCH INTEREST

- diluted magnetic semiconductors, spintronics
- impurities and native defects in semiconductors
- first-principles modeling of materials at the nano-scale

RESEARCH HIGHLIGHTS

- Phys. Rev. Lett. 98, 166804 (2007) was selected by the editors as the “Editors’ Suggestion;” was selected to appear in the Virtual Journal of Nanoscale Science & Technology; attracted the attention of several online news media (Science Daily, Nanotechnology Now, PhysOrg.com)
- Phys. Rev. B 75, 035406 (2007) was selected to appear in the Virtual Journal of Nanoscale Science & Technology

PROFESSIONAL MEMBERSHIPS

- American Physical Society

PUBLICATIONS

22. A. Navarro-Quezada, N. Gonzalez Szwacki, W. Stefanowicz, Tian Li, A. Grois, T. Devillers, M. Rovezzi, R. Jakieła, B. Faina, J. A. Majewski, M. Sawicki, T. Dietl, and A. Baonanni, “*Fe-Mg interplay and the effect of deposition mode in (Ga,Fe)N doped with Mg*”, **Phys. Rev. B** **84**, 155321 (2011).
21. N. Gonzalez Szwacki, J. A. Majewski, and T. Dietl, “*Aggregation and magnetism of Cr, Mn, and Fe cations in GaN*”, **Phys. Rev. B** **83**, 184417 (2011).
20. N. Gonzalez Szwacki and C. J. Tymczak, “*The symmetry of the boron buckyball and a related boron nanotube*”, **Chem. Phys. Lett.** **494**, 80 (2010).
19. N. Gonzalez Szwacki and T. Szwacka, “*Basic Elements of Crystallography*” (Pan Stanford Publishing, 2010).
18. N. Gonzalez Szwacki, V. Weber, and C. J. Tymczak, “*Aromatic Borozene*”, **Nanoscale Res. Lett.** **4**, 1085 (2009).
17. N. Gonzalez Szwacki, M. Sanati, and S. K. Estreicher, “*Two FeH pairs in n-type Si and their implications: A theoretical study*”, **Phys. Rev. B** **78**, 113202 (2008).
16. S. K. Estreicher, M. Sanati, and N. Gonzalez Szwacki, “*Iron in silicon: Interactions with radiation defects, carbon, and oxygen*”, **Phys. Rev. B** **77**, 125214 (2008).
15. N. Gonzalez Szwacki, A. Sadrzadeh, and B. I. Yakobson, “*Erratum: B₈₀ Fullerene: An Ab Initio Prediction of Geometry, Stability, and Electronic Structure [Phys. Rev. Lett. 98, 166804 (2007)]*”, **Phys. Rev. Lett.** **100**, 159901(E) (2008).
14. N. Gonzalez Szwacki, “*Boron Fullerenes: A First-Principles Study*”, **Nanoscale Res. Lett.** **3**, 49 (2008).
13. S. K. Estreicher, M. Sanati, and N. Gonzalez Szwacki, “*Fundamental Interactions of Fe in silicon: First-Principles Theory*”, **Solid State Phenomena** **131-133**, 233 (2008).
12. Y. Lin, N. Gonzalez Szwacki, and B. I. Yakobson, “*Quasi-one-dimensional silicon nanostructures*”, in *Nanosilicon*, edited by V. Kumar (Elsevier, Amsterdam, 2007).
11. N. Gonzalez Szwacki and S. K. Estreicher, “*First-principles investigations of Fe-H interactions in silicon*”, **Physica B** **401-402**, 171 (2007).
10. M. Sanati, N. Gonzalez Szwacki, and S. K. Estreicher, “*Interstitial Fe in Si: Interactions with hydrogen and shallow dopants*”, **Phys. Rev. B** **76**, 125204, (2007).
9. N. Gonzalez Szwacki, A. Sadrzadeh, and B. I. Yakobson, “*B₈₀ Fullerene: An Ab Initio Prediction of Geometry, Stability, and Electronic Structure*”, **Phys. Rev. Lett.** **98**, 166804 (2007).
8. N. Gonzalez Szwacki and B. I. Yakobson, “*Energy decomposition analysis of metal silicide nanowires from first principles*”, **Phys. Rev. B** **75**, 035406 (2007).
7. P. Bogusławski, N. Gonzalez Szwacki, and J. Bernholc, “*Interfacial segregation and electrodiffusion of dopants in AlN/GaN superlattices*”, **Phys. Rev. Lett.** **96**, 185501 (2006).
6. P. Djemia, Y. Roussigné, A. Stashkevich, W. Szuszkiewicz, N. Gonzalez Szwacki, E. Dynowska, E. Janik, B. J. Kowalski, G. Karczewski, P. Bogusławski, M. Jouanne, and J. F. Morhange, “*Elastic properties of zinc blende MnTe*”, **Acta Phys. Polon. A** **106**, 239 (2004).
5. N. Gonzalez Szwacki, E. Przeździecka, E. Dynowska, P. Bogusławski, and J. Kossut, “*Structural properties of MnTe, ZnTe, and ZnMnTe*”, **Acta Phys. Polon. A** **106**, 233 (2004).
4. N. E. Christensen, I. Gorczyca, A. Svane, N. Gonzalez Szwacki, and P. Bogusławski, “*Theoretical Studies of Semiconductors, with and without Defects, under Pressure*”, **Phys. Stat. Sol. (b)** **235**, 374 (2003).
3. N. Gonzalez Szwacki, P. Bogusławski, I. Gorczyca, N. E. Christensen, and A. Svane, “*Electronic structure and optical properties of GaAs_{1-x}N_x and Ga_{1-x}B_xAs alloys*”, proceedings of the 26th

International Conference on the Physics of Semiconductors, (ICPS26), Edinburgh, UK, July 28 - August 2 (2002), 253 (2003).

2. N. Gonzalez Szwacki, P. Bogusławski, I. Gorczyca, N. E. Christensen, and A. Svane, "Electronic structure and optical properties of $GaAs_{1-x}N_x$ and $Ga_{1-x}B_xAs$ alloys", **Acta Phys. Polon. A** **102**, 633 (2002).
1. N. Gonzalez Szwacki and P. Bogusławski, "GaAs:N vs GaAs:B: Symmetry-induced effects", **Phys. Rev. B** **64**, R161201 (2001).

PRESENTATIONS AT CONFERENCES AND SEMINARS

1. N. Gonzalez Szwacki, J. A. Majewski, and T. Dietl, "Clustering of magnetic ions in GaN", European Materials Research Society Fall Meeting, (E-MRS), Warsaw, Poland, September 13-17, 2010.
2. N. Gonzalez Szwacki, J. A. Majewski, and T. Dietl, "Clustering of magnetic ions in GaN", 39th "Jaszowiec" International School and Conference on the Physics of Semiconductors, Krynica, Poland, June 19-24, 2010.
3. N. Gonzalez Szwacki, "Boron Nanoclusters and Nanotubes", invited seminar presented at the University of Szczecin, Szczecin, Poland, January 6, 2010.
4. N. Gonzalez Szwacki, V. Weber, and C. J. Tymczak, "Borozene: A Building Block of Boron Nanostructures", Joint Fall 2009 Meeting of the Texas Sections of the APS, AAPT, and SPS, San Marcos, Texas, USA, October 22-24, 2009.
5. N. Gonzalez Szwacki, V. Weber, and C. J. Tymczak, "Aromatic Borozene", 2009 South West Theoretical Chemistry Conference, Houston, Texas, USA, October 16-17, 2009.
6. N. Gonzalez Szwacki, V. Weber, and C. J. Tymczak, "Borozene: the boron hydride analog of benzene", 2009 NSTI Nanotechnology Conference and Expo, Houston, Texas, USA, May 3-7, 2009. (poster)
7. N. Gonzalez Szwacki, "First-principles modeling of materials at the atomic scale", invited seminar presented at Texas Southern University, Houston, Texas, USA, March 3, 2008.
8. N. Gonzalez Szwacki, "Boron Fullerenes and Nanotubes: An Ab Initio Study", 2007 Virtual Conference on Nanoscale Science and Technology, VC-NST-2007, Fayetteville, Arkansas, USA, October 21-25, 2007.
9. N. Gonzalez Szwacki and S. K. Estreicher, "First-principles investigations of Fe-H interactions in silicon", 24th International Conference on Defects in Semiconductors, Albuquerque, New Mexico, USA, July 22-27, 2007. (poster)
10. N. Gonzalez Szwacki and Boris I. Yakobson, "Energy Decomposition Analysis of Metal Silicide Nanowires", Spring Meeting of the Materials Research Society, San Francisco, California, USA, April 17-21, 2006. (poster)
11. N. Gonzalez Szwacki, "Determination of electronic, crystallographic, and magnetic properties of Ga(As,N) and (Mn,Zn)Te compounds by ab initio calculations", invited seminar presented at the University of Modena and Reggio Emilia, Modena, Italy, November 21, 2004.
12. N. Gonzalez Szwacki and P. Bogusławski, "Structural properties of MnTe, ZnTe, and ZnO, and phase stability of $Mn_xZn_{1-x}Te$ alloy", European Materials Research Society Fall Meeting, (E-MRS), Warsaw, Poland, September 6-10, 2004.
13. N. Gonzalez Szwacki, "Ab initio study of the electronic, magnetic, and crystallographic properties of Ga(As,N), (Ga,B)As, and (Mn,Zn)Te compounds", invited seminar presented at the University of Los Andes, Merida, Venezuela, July 27, 2004.

14. N. Gonzalez Szwacki, E. Przeździecka, E. Dynowska, and P. Bogusławski, “*Elastic properties and structural stability of MnTe, ZnTe, ZnO, and ZnMnTe*”, 33rd International School on the Physics of Semiconducting Compounds, Jaszowiec, Poland, May 28 - June 4, 2004. (poster)
15. N. Gonzalez Szwacki and P. Bogusławski, “*Segregation of dopants and defects in AlAs/GaAs heterostructures*”, 32nd International School on the Physics of Semiconducting Compounds, Jaszowiec, Poland, May 30 - June 6, 2003. (poster)
16. N. Gonzalez Szwacki and P. Bogusławski, “*Electronic structure and optical properties of GaAs_{1-x}N_x and Ga_{1-x}B_xAs alloys*”, 31st International School on the Physics of Semiconducting Compounds, Jaszowiec, Poland, June 7-14, 2002.
17. N. Gonzalez Szwacki and P. Bogusławski, “*Electronic Structure of GaAs_{1-x}N_x and Ga_{1-x}B_xAs Alloys*”, 29th International School on the Physics of Semiconducting Compounds, Jaszowiec, Poland, June 2-9, 2000.

TEACHING EXPERIENCE

- **substitute instructor:**
 - *Physical Properties of Solids*, Rice University, Spring 2005 and Spring 2006
- **teaching assistant:**
 - *Numerical Methods*, College of Sciences - Polish Academy of Sciences, Fall 1999 and Spring 2000
 - *Electronic Structure of Solids*, College of Sciences - Polish Academy of Sciences, Spring 2001
 - *Solid State Theory*, Cardinal Stefan Wyszyński University, Fall 2001 and Spring 2002

REFERENCES CONTACT INFORMATION

Jacek A. Majewski

Professor, Institute of Theoretical Physics
 University of Warsaw, ul. Hoża 69
 PL-00-681 Warszawa, Poland
 Phone: +48-22-5532244
 Fax: +48-22-6219475
 E-mail: Jacek.Majewski@fuw.edu.pl

Christopher J. Tymczak

Professor, Department of Physics
 Texas Southern University, 3100 Cleburne Ave.
 Houston, TX 77004, USA
 Phone: +1-713-3131849
 Fax: +1-713-3131833
 E-mail: tymczakcj@tsu.edu

Stefan K. Estreicher

Professor, Department of Physics
 Texas Tech University, MS 1051
 Lubbock, TX 79409, USA
 Phone: +1-806-7423723
 Fax: +1-806-7421182
 E-mail: stefan.estreicher@ttu.edu

Tomasz Dietl

Professor, Institute of Physics
 Polish Academy of Sciences, al. Lotników 32/46
 PL-02-668 Warszawa, Poland
 Phone: +48-22-8435324
 Fax: +48-22-8475224
 E-mail: dietl@ifpan.edu.pl

Piotr Bogusławski

Professor, Institute of Physics
 Polish Academy of Sciences, AL. Lotników 32/46
 PL-02-668 Warsaw, Poland
 Phone: +48-22-8436601 ext. 3284
 Fax: +48-22-8431331
 E-mail: bogus@ifpan.edu.pl

Boris I. Yakobson

Professor, Department of Mechanical Engineering and
 Materials Science and Chemistry
 Rice University, MS 321
 Houston, TX 77005, USA
 Phone: +1-713-3483572
 Fax: +1-713-3485423
 E-mail: biy@rice.edu