GABRIELA B. GONZÁLEZ AVILÉS

C.V.

CONTACT INFORMATION

Department of Physics
DePaul University
2219 North Kenmore Avenue
Chicago, IL 60614
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EDUCATION

Northwestern University (Evanston, Illinois, USA) June 2003

Ph. D. in Materials Science and Engineering
Dissertation Title: "X-ray and Neutron Diffraction Studies on the Defect Structure of Bulk- and Nano-Indium-Tin-Oxide"

University of Pennsylvania (Philadelphia, Pennsylvania, USA) December 1996

Magna Cum Laude

- Bachelor of Science in Materials Science and Engineering
- Bachelor of Science in Systems Science and Engineering
- Minor in Mathematics

Senior Design Projects:

- Preparation and characterization of thin SiO_x films via a polymer precursor route.
- Improvement of the bonding of recycled tires into concrete.

ACADEMIC APPOINTMENTS

DePaul University, Department of Physics (Chicago, Illinois, USA)

Assistant Professor September 2007 – Present

European Synchrotron Radiation Facility, Experiments Division (Grenoble, France)

- Junior Scientist May 2006 – September 2007
- Post-Doctoral Fellow May 2003 – May 2006

Research projects:

- *In situ*, high-temperature, x-ray diffraction investigations on the grain growth kinetics of nano-indium-tin oxide powders and on the crystallographic phases of the In_2O_3-SnO_2 phase diagram.
- X-ray diffraction studies on the kinetics of crystallization of liquid and solid, amorphous hydroxyapatite precursors, and on their phase transitions as a function of temperature, dopants, and different chemical synthesis conditions.

TEACHING EXPERIENCE

Undergraduate Level Courses Taught

- PHY 120: How Things Work — Spring 2008 and 2010
- PHY 171: University Physics II — Winter 2008
- PHY 206: Sound and Acoustics — Winter 2009
- PHY 232: Introduction to Digital Electronics — Spring 2011
- PHY 270: University Physics IV — Fall 2007 and 2008
- PHY 300: Methods of Computational and Theoretical Physics I — Winter 2010, 2011, and 2012
- PHY 340: Thermal Physics — Spring 2012
- PHY 360: Quantum Mechanics I — Winter 2009, Fall 2010, and 2011
- PHY 361: Quantum Mechanics II — Spring 2009 and Winter 2011

First-Year Program and Liberal Studies Program Courses Taught

- LSP 110: Discover Chicago "Science and the City" — Fall 2010 and 2011
- ISP/LSP 120: Quantitative Reasoning — Spring 2008 and 2009

Undergraduate/Graduate Level Cross-Listed Courses Taught

- PHY 391/491: Electronic Properties of Materials — Winter 2008 and Spring 2010

Undergraduate Independent Studies (Junior Experiential Learning Course)

- PHY 398: Reading and Research, Bryan Hardnacke and Anna Wesolik — Winter 2011
- PHY 398: Reading and Research, Leonel Hernandez — Fall 2008

Graduate Research Courses

- PHY 480: Thesis Research, Zachary Fonteyne — Spring 2011 and Fall 2011

Research Advisor to Undergraduate Students

- Mark Procaccio — 2012
- Bruce Griffin — 2011
- Jordan Gardner, Bryan Hardnacke, and Anna Wesolik — 2010 – 2011
- Leonel Hernandez — 2008 – 2010
- Jared Hennen, Alexander Slawik, and Thomas McManus — Summer 2008

Graduate Student Master's Thesis Committees

- Member, Jared Hennen — 2012
- Member, Alexis Knaub — 2009 and 2010
- Member, G Jackson Williams — 2009

Research and Academic Advisor to Master's Students

- Chair, Rofeideh Mansourian — In Progress
- Chair, Zachary Fonteyne — In Progress

Graduate Student Doctoral Dissertation Thesis Committees

- Member, Ph. D. Dissertation, Diana Proffit, Northwestern University — 2011
- Member, Ph. D. Qualifier, Diana Proffit, Northwestern University — 2008

GRANTS AND CONTRACTS

External Grants

- NSF-MRSEC "Multifunctional Nanoscale Material Structures" NSF Award Number DMR-1121262, Interdisciplinary Research Group 2 "Fundamentals of Amorphous Oxide Semiconductors", Investigators: MJ Bedzyk, RPH Chang, VP Dravid, **GB González Avilés ($72,103)**, MA Grayson, TJ Marks, TO Mason, J Medvedeva, and P Vorhees, funding for 2011 – 2017.

- Research Corporation, Cottrell College Science Awards, "Synthesis, Defect Structural Determination, and Electrical Characterization of Zinc-Based Transparent Conducting Oxides", single investigator, $48,000, approved pre-proposal, not funded, submitted in 2008.

- Research Corporation, Cottrell College Science Awards, "Synthesis, Defect Structural Studies, and Electrical Characterization of Zinc-Based Transparent Conducting Oxides", single investigator, $54,000, not funded, submitted in 2007.

Internal Grants

- Faculty Research and Development 2011, Summer Research Grant, "The Effect of Reduction Conditions on the Electrical Performance of Zinc Oxide", LA&S, $4,200.

- Faculty Research and Development 2009, Summer Research Grant, "Determining the Defect Structure and Electrical Properties of Zinc-Based Transparent Conducting Oxides", LA&S, $4,200.

Proposals Awarded Beam Time at the Advanced Photon Source, Argonne National Laboratory

- "Glancing-Incidence WAXS (Wide-Angle X-Ray Scattering) of ITO Thin Films," performed in June 2012 at the 1-ID-C station, Co-PI, GUP 30661, 6 shifts*.

- "Anomalous Powder Diffraction from $In_4Sn_3O_{12}$", performed in December 2011 at the 11-BM station. [U]Bruce Griffin participated in sample preparation, GUP 28328, 8 shifts*.

- "*In Situ* Grain Growth Investigations on Zinc Oxide Nano-Materials", performed in December 2010 at the 1-BM-C station. [U]Jordan Gardner, [U]Bryan Hardnacke, and [G]Rofeideh Mansourian participated in sample preparation and data collection, GUP 22783, 18 shifts*.

- "High-Resolution X-ray Diffraction Studies on Undoped Zinc Oxide Materials", performed in August 2010 at the 11-BM. [U]Jordan Gardner, [U]Bryan Hardnacke, [U]Leonel Hernandez, [G]Rofeideh Mansourian, and [U]Anna Wesolik participated in sample preparation and data collection, GUP 21514, 6 shifts*.

- "Grain Growth Behavior for Nano-Zinc Oxide," performed in June/July 2010 at the 1-BM-C station. [U]Jordan Gardner and [U]Bryan Hardnacke participated in data collection, GUP 22093, 15 shifts*.

- "In Situ Grain Growth Observation for Nano-Indium-Tin Oxide," performed in June 2010 at the 1-BM-C station, Co-PI, GUP 22091, 15 shifts*.

- "Grain Growth and Defect Structural Studies on Quenched Zinc Oxide Materials", performed in April 2010 at the 11-BM station. [G]Rofeideh Mansourian participated in sample preparation, GUP 20980, 3 shifts*.

Proposal Awarded Beam Time at the Spallation Neutron Source, Oak Ridge National Laboratory

- "Defect structure studies on undoped zinc oxide transparent conductors", performed in November 2010 at BL-11A, POWGEN. [U]Jordan Gardner, [U]Bryan Hardnacke, [U]Leonel Hernandez, [G]Rofeideh Mansourian, and [U]Anna Wesolik participated in sample preparation, IPTS3070, 3 shifts*.

PUBLICATIONS

Refereed Journal Articles

1. INVESTIGATING THE DEFECT STRUCTURES IN TRANSPARENT CONDUCTING OXIDES USING X-RAY AND NEUTRON SCATTERING TECHNIQUES
GB González, *Materials* 5, 818-850, **2012,** *Review Paper in the Special Issue on Transparent Conducting Oxides.*

2. DETERMINATION OF THE SOLUBILITY OF TIN IN INDIUM OXIDE USING *IN SITU* AND *EX SITU* X-RAY DIFFRACTION
GB González, TO Mason, JS Okasinski, T Buslaps, and V Honkimäki, *J. Am. Ceram. Soc.* 95(2) 809-815, **2012**.

3. THEORETICAL AND EXPERIMENTAL STUDIES OF SUBSTITUTION OF CADMIUM INTO HYDROXYAPATITE
J Terra, **GB González**, AM Rossi, JG Eon, and DE Ellis, *Phys. Chem. Chem. Phys.* 12:(47) 15490-15500, **2010**.

4. DAUPHINE TWINNING AND TEXTURE MEMORY IN POLYCRYSTALLINE QUARTZ, PART 3: TEXTURE MEMORY DURING PHASE TRANSFORMATION
H-R Wenk, N Barton, M Bortolotti, SC Vogel, M Voltolini, GE Lloyd, and **GB González**, *Phys. Chem. Minerals* 36:(10), 567-583, **2009**.

5. THE STRUCTURE OF STRONTIUM-DOPED HYDROXYAPATITE: AN EXPERIMENTAL AND THEORETICAL STUDY

J Terra, E Rodrigues Dourado, JG Eon, DE Ellis, **G González**, and AM Rossi, *Phys. Chem. Chem. Phys.* 11:(3) 568-577, **2009**.

6. *IN SITU* STUDIES ON THE KINETICS OF FORMATION AND CRYSTAL STRUCTURE OF THE PHASE $In_4Sn_3O_{12}$ USING HIGH-ENERGY, X-RAY DIFFRACTION
GB González, JS Okasinski, TO Mason, T Buslaps, and V Honkimäki, *J. Appl. Phys.* 104:(4) 043520, **2008**.

7. A THEORETICAL AND EXPERIMENTAL STUDY OF LEAD SUBSTITUTION IN CALCIUM HYDROXYAPATITE
DE Ellis, J Terra, O Warschkow, M Jiang, **GB González**, JS Okasinski, MJ Bedzyk, AM Rossi, and JG Eon, *Phys. Chem. Chem. Phys.* 8:(8) 967-976, **2006**.

8. INTERSTITIAL OXYGEN IN TIN-DOPED INDIUM OXIDE TRANSPARENT CONDUCTORS
O Warschkow, L Miljacic, DE Ellis, **GB González**, and TO Mason, *J. Amer. Ceram. Soc.* 89:(2) 616-619, **2006**.

9. DAUPHINE TWINNING AND TEXTURE MEMORY IN POLYCRYSTALLINE QUARTZ, PART 1: EXPERIMENTAL DEFORMATION OF NOVACULITE
H-R Wenk, E Rybacki, G Dressen, I Lonardelli, N Barton, H Franz and **G González**, *Phys. Chem. Minerals* 33:(10), 667-676, **2006**.

10. DEFECT STRUCTURE STUDIES OF BULK AND NANO-INDIUM-TIN OXIDE
GB González, TO Mason, JP Quintana, O Warschkow, DE Ellis, J-H Hwang, JP Hodges, and JD Jorgensen, *J. Appl. Phys.* 96:(7) 3912-3920, **2004**.

11. CHEMICAL AND STRUCTURAL FACTORS GOVERNING TRANSPARENT CONDUCTIVITY IN OXIDES
BJ Ingram, **GB González**, DR Kammler, MI Bertoni, and TO Mason, *J Electroceramics* 13:(1-3) 167-175, **2004**.

12. TRANSPORT AND DEFECT MECHANISMS IN CUPROUS DELAFOSSITES 1.COMPARISON OF HYDROTHERMAL AND STANDARD SOLID-STATE SYNTHESIS IN $CuAlO_2$
BJ Ingram, **GB González**, TO Mason, DY Shahriari, A Barnabe, D Ko, and KR Poeppelmeier*, Chem. Mater.* 16, 5616-5622, **2004**.

13. POINT DEFECTS AND RELATED PROPERTIES OF HIGHLY CO-DOPED In_2O_3
TO Mason, **GB González**, J-H Hwang, and DR Kammler, *Phys. Chem. Chem. Phys.* 5:(11) 2183-2189, **2003**.

14. DEFECT CLUSTER AGGREGATION AND NON-REDUCIBILITY IN TIN-DOPED INDIUM OXIDE
O Warschkow, DE Ellis, **GB González**, and TO Mason, *J. Amer. Ceram. Soc.* 86:(10) 1707-1711, **2003**.

15. DEFECT STRUCTURES OF TIN-DOPED INDIUM OXIDE

O Warschkow, DE Ellis, **GB González**, and TO Mason, *J. Amer. Ceram. Soc.* 86:(10) 1700-1706, **2003**.

16. KEY STRUCTURAL AND DEFECT CHEMICAL ASPECTS OF Cd-In-Sn-O TRANSPARENT CONDUCTING OXIDES
TO Mason, DR Kammler, BJ Ingram, **GB González**, DL Young, and TJ Coutts, *Thin Solid Films* 445: (2) 186-192, **2003**.

17. DEFECT CHEMISTRY AND PHYSICAL PROPERTIES OF TRANSPARENT CONDUCTING OXIDES IN THE CdO-In_2O_3-SnO_2 SYSTEM
TO Mason, **GB González**, DR Kammler, N Mansourian-Hadavi, and BJ Ingram, *Thin Solid Films* 411:(1) 106-114, **2002**.

18. CATION DISTRIBUTION OF THE TRANSPARENT CONDUCTING SPINEL OXIDE SOLUTION $^{112}Cd_{1+x}In_{2-2x}Sn_xO_4$
D Ko, KR Poeppelmeier, DR Kammler, **GB González**, TO Mason, and DL Williamson, *J. Solid State Chemistry* 163:(1) 259-266, **2002**.

19. SUBSOLIDUS PHASE RELATIONS AND TRANSPARENT CONDUCTORS IN THE CADMIUM-INDIUM-TIN OXIDE SYSTEM
DR Kammler, BJ Harder, NW Hrabe, NM McDonald, **GB González**, DA Penake, and TO Mason, *J. Amer. Ceram. Soc.* 85:(9) 2345-2352, **2002**.

20. NEUTRON DIFFRACTION STUDY ON THE DEFECT STRUCTURE OF INDIUM-TIN-OXIDE
GB González, JB Cohen, J-H Hwang, TO Mason, JP Hodges, and JD Jorgensen, *J. Appl. Phys.* 89:(5) 2550-2555, **2001**.

21. SPIN-ON-GLASS THIN FILMS PREPARED FROM A NOVEL POLYSILSESQUIOXANE BY THERMAL AND ULTRAVIOLET-IRRADIATION METHODS
Q Pan, **GB González**, RJ Composto, WE Wallace, B Arkles, LK Figge, and DH Berry, *Thin Solid Films* 345:(2) 244-254, **1999**.

Book Chapter

22. IMPEDANCE/DIELECTRIC SPECTROSCOPY OF NANOCERAMICS
TO Mason, J-H Hwang, N Mansourian-Hadavi, **G González**, BJ Ingram, and ZJ Homrighaus in *Nanocrystalline Metals and Oxides Selected Properties and Applications* ed., by P Knauth, and J Schoonman, Series Electronic Materials: Science and Technology, Volume 7, 111-131, Kluwer Academic Publishers, **2002**.

Proceedings Articles

23. DEFECT STRUCTURE OF INDIUM TIN OXIDE AND ITS RELATIONSHIP TO CONDUCTIVITY
GB González, JB Cohen, J-H Hwang, TO Mason, JP Hodges, and JD Jorgensen, Proceedings of the International Conference on Mass and Charge Transport in Inorganic

Materials, *Advances in Science and Technology* 29A 137-144, ed. by P Vincenzini and V Buscaglia, 2000.

International Database Contributions

G González Avilés, four new crystallographic structures published by the International Centre for Diffraction Data (ICDD) in the 2010 *Release of the Powder Diffraction File Database*: $Ca_{9.9}\ Sr_{0.1}\ (PO_4)_6\ (OH)_2$ (reference number 00-060-0646), $Ca_{9.6}\ Sr_{0.4}\ (PO_4)_6\ (OH)_2$ (reference number 00-060-0647), $Ca_9\ Sr\ (PO_4)_6\ (OH)_2$ (reference number 00-060-0648), and $Ca_{8.5}\ Sr_{1.5}\ (PO_4)_6\ (OH)_2$ (reference number 00-060-0649).

Work in Progress

24. X-RAY AND NEUTRON DETERMINATION OF DEFECTS IN ZINC OXIDE BULK- AND NANO-POWDERS
GB González, [G]R Mansourian, [U]L Hernandez, [U]B Harnacke, [U]A Wesolik, [U]J Gardner, [U]A Slawik, [U]T McManus, and [U]J Hennen.

25. GRAIN GROWTH OF ZINC OXIDE NANOPOWDERS AND ITS RELATIONSHIP TO ELECTRICAL PROPERTIES
[G]R Mansourian, GB González , and JS Okasinski.

26. ANOMALOUS X-RAY SCATTERING STUDIES OF $In_4Sn_3O_{12}$
GB González, JS Okasinski, M Suchomel, and [U]B Griffin.

27. *IN SITU* X-RAY DIFFRACTION INVESTIGATION ON THE GRAIN GROWTH KINETICS OF INDIUM-TIN OXIDE NANOPOWDERS AND ON THE SOLUBILITY OF Sn IN In_2O_3 AT HIGH TEMPERATURES
GB González, JS Okasinski, TO Mason, T Buslaps, and V Honkimäki.

28. EXAFS AND X-RAY DIFFRACTION STUDIES OF ZINC SUBSTITUTION IN CALCIUM HYDROXYAPATITE
J Terra, GB González, AM Rossi, JG Eon, and DE Ellis.

SCHOLARLY PAPERS PRESENTED

Refereed Conference Presentations

COMBINED RIETVELD ANALYSIS OF X-RAY AND NEUTRON DIFFRACTION DATA OF ZINC OXIDE TRANSPARENT CONDUCTORS
GB González, [G]R Mansourian, JS Okasinski, [U]L Hernandez, [U]B Harnacke, [U]A Wesolik, [U]J Gardner, [U]A Slawik, [U]T McManus, and [U]J Hennen. Presented at the 2011 Denver X-Ray Conference in the Session: Rietveld Analysis I, Colorado Springs, C0, August 2011.

IN SITU AND *EX SITU* HIGH-TEMPERATURE STUDIES ON INDIUM-TIN OXIDE
GB González. Presented at the Non-Stoichiometric Compounds Conference, Kauai, HI, April 2005.

STRUCTURAL AND ELECTRICAL PROPERTIES OF THE TRANSPARENT CONDUCTING OXIDE, In_2O_3:Sn.
GB González, TO Mason, JP Quintana, JP Hodges, and JD Jorgensen. Presented at the American Ceramic Society 104th Annual Meeting and Exposition, St. Louis, MO, May 2002.

COMPARISON OF NANO- VERSUS BULK-INDIUM-TIN OXIDE (ITO): TRANSPORT AND DEFECT STUDIES
GB González, J–H Hwang, JB Cohen, TO Mason, JP Hodges, and JD Jorgensen. Presented at the American Ceramic Society 103rd Annual Meeting and Exposition, Indiannapolis, IN, April 2001.

DEFECT STRUCTURE OF INDIUM TIN OXIDE AND ITS RELATIONSHIP TO CONDUCTIVITY
GB González, JB Cohen, J–H Hwang, TO Mason, JP Hodges, and JD Jorgensen. Presented at the Conference International Materiaux et Technologies (CIMTEC) on "Mass and Charge Transport in Inorganic Materials," Venice, Italy, May-June 2000.

NEUTRON DIFFRACTION STUDIES ON THE DEFECT STRUCTURE OF INDIUM TIN OXIDE
GB González, JB Cohen, J–H Hwang, TO Mason, JP Hodges, and JD Jorgensen. Presented at the American Ceramic Society 102nd Annual Meeting and Exposition, St. Louis, MO, May 2000.

Refereed Conference Posters

IN-SITU STUDY OF GRAIN GROWTH OF NANO-ITO
JS Okasinski and **GB González.** Presented at the 60th Denver X-Ray Conference in the X-Ray Diffraction Poster Session, Denver, C0, August 2010.

ENGINEERING MATERIALS SCIENCE AT ESRF: PRESENT AND FUTURE CAPABILITIES
T Buslaps, M DiMichiel, V Honkimäki, M Peel, J Daniels, D Pontoni, F Venturini, A Mauro, C Mercier, and **G González Aviles.** Presented at the 5th International Conference on Mechanic Stress Evaluation by Neutrons and Synchrotron Radiation, Mito, Japan, November 2009.

Graduate Student Conference Presentations and Posters

THE EFFECT OF GRAIN SIZE ON THE SEMICONDUCTING, ELECTRICAL, AND STRUCTURAL PROPERTIES OF ZINC OXIDE
GRofeideh Mansourian and **GB González.** Presented at the 61st Denver X-Ray Conference in the X-Ray Diffraction Poster Session, Colorado Springs, C0, August 2011.

Undergraduate Student Conference Presentations and Posters

IMPROVING THE CONDUCTIVITY OF TRANSPARENT CONDUCTORS
[U]Bruce Griffin. Presented at the Science/Math/Technology Showcase, DePaul University, November 2011.

ENHANCING THE CONDUCTIVE PROPERTIES OF ZINC OXIDE
[U]Bryan Hardnacke and [U]Anna Wesolik, Presented at the 5th Annual LA&S Student Research Conference, DePaul University, April 2011.

ENHANCING THE CONDUCTIVE PROPERTIES OF ZINC OXIDE
[U]Bryan Hardnacke and [U]Anna Wesolik, Presented at the Science/Math/Technology Showcase, DePaul University, November 2010.

IMPROVING THE ELECTRICAL PROPERTIES OF ZINC OXIDE
[U]Leonel Hernandez. Presented at the Science/Math/Technology Showcase, DePaul University, November 2009.

IMPROVING THE ELECTRICAL PROPERTIES OF ZINC OXIDE
[U]Leonel Hernandez and **GB Gonzalez**. Presented at the Society for Advancing Hispanics/Chicanos and Native Americans in Science (SACNAS) National Conference, Dallas, TX, October 2009.

IMPROVING THE ELECTRICAL PROPERTIES OF ZINC OXIDE
[U]Leonel Hernandez and [U]Alexander Slawik. Presented at Creating Knowledge: The 3rd Annual LA&S Student Research Conference, DePaul University, April 2009.

ATOMIC AND MICRO-STRUCTURAL ANALYSIS OF ZINC OXIDE MATERIALS
[U]Thomas McManus and [U]Jared Hennen. Presented at Creating Knowledge: The 3rd Annual LA&S Student Research Conference, DePaul University, April 2009.

ATOMIC AND MICRO-STRUCTURAL ANALYSIS OF ZINC OXIDE (ZNO)
[U]Thomas McManus, [U]Alexander Salwik, and [U]Jared Hennen. Presented at the DePaul Science/Math/Technology Showcase, November 2008.

SYNTHESIS AND ELECTRICAL PROPERTIES OF ZINC OXIDE
[U]Alexander Slawik, [U]Jared Hennen, and [U]Thomas McManus. Presented at the DePaul Science/Math/Technology Showcase, November 2008.

Invited Research Presentations

COMBINED RIETVELD ANALYSIS OF X-RAY AND NEUTRON DIFFRACTION DATA OF ZINC OXIDE TRANSPARENT CONDUCTORS
GB González, [G]R Mansourian, JS Okasinski, [U]L Hernandez, [U]B Harnacke, [U]A Wesolik, [U]J Gardner, [U]A Slawik, [U]T McManus, and [U]J Hennen. Presented at the International Symposium on Defects, Transport and Related Phenomena, at the Materials Science &

Technology/American Ceramic Society Annual Conference in Columbus, OH, October 2011.

LOOKING THROUGH SEMICONDUCTORS
GB González. Presented at the SACNAS Annual Conference in the session on Materials Science and Engineering, Anaheim, CA, September 2010.

INVESTIGATIONS OF THE DEFECT STRUCTURE OF TRANSPARENT CONDUCTORS USING X-RAY AND NEUTRON SCATTERING TECHNIQUES
GB González. Presented at the 60th Denver X-ray Conference in the Plenary Session: The Greening of X-rays: X-rays and Renewable Energy, Denver CO, August 2010.

EXPLORING THE ATOMIC STRUCTURE OF MATERIALS: FROM SYNTHETIC BONE TO TRANSPARENT CONDUCTORS
GB González. Presented at the Physics Department Colloquium Series, DePaul University, February 2009.

SERVICE

University

- Member of the Chicago Quarter Committee, Fall 2011 – Present.
- Member of the Panel "Negotiating the First Year" for the New Faculty Orientation, September 2008.

College

- Premiere DePaul Advising, Summer 2012.
- CSH Curriculum Committee, Fall 2011 – Present.
- Scholarship Committee, Spring 2012 – Present.
- Faculty Editorial Board for the CSH Undergraduate Research Journal, 2012.
- Faculty Editorial Board for Creating Knowledge, The LA&S Student Research Journal, Volume 4, 2011.
- Task Force on Reading Comprehension and the Development of Analytic Skills 2009-2011.
- FGC LA&S Handbook Task Force, Summer 2009.

Department

- Graduate Committee, 2008 – Present.
- Academic Advisor for 26 Physics Undergraduate Students, 2008 – Present.
- Scholarship Committee, 2012 – Present.
- Physics Department Representative for the Spring Visit Day, April 2009.
- Vasa Scholarship Committee, 2008.
- Hiring Faculty Committee, 2008 – 2009.

Community

- Reviewer for abstracts submitted by science undergraduate and graduate students for the 2010 and 2012 SACNAS National Conferences.
- Judge for oral presentations for the Chicago Area Undergraduate Research Symposia, April 2010.

PROFESSIONAL ACTIVITIES

Journal Reviewer

- Journal of the American Ceramic Society
- Scripta Materialia
- Materials Science and Engineering B

Professional Affiliations

- American Ceramic Society
- American Physical Society
- Society for Advancing Hispanics/Chicanos and Native Americans in Science (SACNAS)

Professional Development (Workshops)

"DePaul's Innovative Internships & Co-Op Program: A Launching Pad for Student Success Workshop, Advisor's Role in Promoting Student Success," DePaul University, May 2009.

"College of Liberal Arts and Sciences Workshop on Advising Students with Multiple Advisors," DePaul University, Spring 2009.

"College of Liberal Arts and Sciences Workshop on Advising Transfer Students," DePaul University, January 2009.

"Second- and Third-Year LA&S Faculty Discussion on Teaching at DePaul," DePaul University, November 2008.

"What Faculty Members Need to Know about Retention," on-line seminar, DePaul University, 2008.

"College of Liberal Arts and Sciences Workshop on the Advising Encounter," at DePaul University, Chicago IL, September 2008.

"Summer Workshop for New Physics and Astronomy Faculty," organized by the American Association of Physics Teachers, the American Astronomical Society, and the American Physical Society, College Park, MD, June 2008.

Professional Development (Visiting Scholar)

- Part-Time Visiting Scholar: Interdisciplinary Research Group 2 on Fundamentals of Amorphous Oxide Semiconductors at Northwestern University, Materials Research Science and Engineering Center (Summer 2011 – Present)
- Part-Time Visiting Scholar: Interdisciplinary Research Group 1 on Synergistic Linear and Nonlinear Phenomena in Multifunctional Oxide Ceramic Systems at Northwestern University, Materials Research Science and Engineering Center (Summer 2009 – Summer 2011)

AWARDS AND RECOGNITIONS

- Walter P Murphy Fellow
- Hugo Otto Wolf Memorial Prizes in both Materials Science and Systems Engineering
- William Penn Pre-Graduate Fellow and AMP Scholar
- Waldo Semon Award Finalist
- POLYED Undergraduate Research Award

Undergraduate Student Awards

"Enhancing the Electrical Properties of Zinc Oxide via Aluminum Doping," [U]Mark Procaccio, Undergraduate Research Assistant Program (URAP) Grant, $1350, Summer and Fall 2012.

"Enhancing the Conductive Properties of Zinc Oxide," [U]Bryan Hardnacke and [U]Anna Wesolik, *Students Creating Knowledge: The LA&S Student Research Journal*, Volume 4, 2011.

"Zinc Oxide: The Future of Transparent Conducting Oxides," Undergraduate Summer Research Proposal Grant, [U]Bryan Hardnacke, $1500, Summer 2010.

"Atomic and Micro-Structural Analysis of Zinc Oxide Materials," [U]Thomas McManus and [U]Jared Hennen, *Students Creating Knowledge: The LA&S Student Research Journal*, Volume 2, 2009.

"Improving the Electrical Properties of Zinc Oxide," [U]Leonel Hernandez and [U]Alexander Slawik, *Students Creating Knowledge: The LA&S Student Research Journal*, Volume 2, 2009

"The Relationship Between Defect Structure and Electrical Conductivity in Zinc Oxide," Undergraduate Research Assistant Program (URAP) Grant, [U]Leonel Hernandez, $675, Fall 2008.

"Defect Structural Analysis of ZnO: The TCO of the Future," Undergraduate Summer Research Proposal (USRP) Grant, [U]Thomas McManus, $1500, Summer 2008.

"Structural and Electrical Properties of Zinc Oxide Materials," Undergraduate Summer Research Proposal (USRP) Grant, [U]Alexander Slawik, $1500, Summer 2008.

"Defect Structure and Electrical Properties of Zinc Oxide," Undergraduate Summer Research Proposal (USRP) Grant, [U]Jared Hennen, $1500, Summer 2008.

Graduate Student Awards

THE EFFECT OF GRAIN SIZE ON THE SEMICONDUCTING, ELECTRICAL, AND STRUCTURAL PROPERTIES OF ZINC OXIDE
[G]Rofeideh Mansourian and **GB González.** Presented at the 61st Denver X-Ray Conference in the X-Ray Diffraction Poster Session, Colorado Springs, C0, August 2011.

- $500, Graduate Research Fund (GRF) Awarded by LA&S, DePaul University, 2011.
- $500, Denver X-Ray Conference Student Travel Grant Fund, 2011.

DEFECT STRUCTURE STUDIES ON UNDOPED ZINC OXIDE TRANSPARENT CONDUCTORS, experiment performed in November 2010 at BL-11A, POWGEN, Oak Ridge National Laboratory. [G]Rofeideh Mansourian applied for GRF to travel.

- $500, Graduate Research Fund (GRF) Awarded by LA&S, DePaul University, 2010.

Notes : * one shift is equivalent to 8 hours of beam time.
[U] corresponds to a DePaul undergraduate student, and [G] corresponds a graduate student.