Pierre Ferdinand Poudeu Poudeu

Associate Professor
Laboratory for Emerging Energy and Electronic Materials,
Materials Science and Engineering Department,
University of Michigan, Ann Arbor, 48109, USA.
Tel: +1-734-763-8436;Fax: +1-734-763-4788;
Email: ppoudeup@umich.edu

Short Bio: Ferdinand Poudeu is currently an Associate Professor of Materials Science and Engineering at the University of Michigan and a Guest Professor at Wuhan University of Technology (China). He earned a Ph.D in Inorganic Solid State Chemistry (2004) from the Technical University of Dresden in Germany. Dr. Poudeu received an NSF CAREER award for his work on novel ferromagnetic semiconductors and was named "Early Research Professor" by the University of New Orleans in recognition of his "outstanding and innovative work in support of the University's research mission". In 2011, he established the vibrant "Laboratory for Emerging Energy and Electronic Materials (LEEM)" within the Materials Science and Engineering at the University of Michigan where his conducting advanced research on various topics including (1) bulk nanostructured thermoelectric materials; (2) novel low-dimensional spintronic materials; (3) multifunctional quantum metamaterials; and (4) intercalation compounds for lithium rechargeable batteries. Dr. Poudeu has graduated 6 PhDs, mentored over 40 undergraduate students; 8 high school students; 2 high school teachers, 6 postdoctoral research associates, and published over 90 journal articles and conference proceedings. He is an Associate Editor for "*Reviews in Advanced Sciences and Engineering*" and "*Journal of Nanoscience Letters"* and contributes on the editorial boards of three other Journals.

EDUCATION

Ph.D. – Dresden University of Technology; Germany	01/2004
D.E.A. – University of Yaoundé-I; Cameroon	07/1999
M.S. – University of Yaoundé-I; Cameroon	08/1998
B.S. – University of Yaoundé-I; Cameroon	08/1996

WORK EXPERIENCE

University of Michigan Materials Science and Engineering Department; Associate Professor	09/15 – Present
Wuhan University of Technology (China) State Key Laboratory of Advanced Technology for Materials Synthesis and Processing; Guest Professor	09/15 – Present
University of Michigan Materials Science and Engineering Department; Assistant Professor	09/11 – 08/15
University of New Orleans Early Research Professor	07/10 – 08/11
University of New Orleans Department of Chemistry and The Advanced Materials Research Institute Assistant Professor	08/07 – 08/11
Northwestern University Department of Chemistry; Postdoctoral Research Associate	09/06 – 08/07
Michigan State University Department of Chemistry; Postdoctoral Research Associate	02/04 – 08/06

CITIZENSHIP

United States

MAJOR AWARDS AND HONORS

Joseph Wang Award 2016 in Nanoscience (Cognizure) **2016**

UNO "Early Research Professor" Award **2010**

The title, Early Research Professor at UNO, is recognition for persons who hold the rank of Assistant Professor at the time of their appointment, who have passed their third-year review and who have distinguished themselves in their creative and scholarly activities.

NSF-CAREER Award **2010**

The National Science Foundation's most prestigious award for junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research.

EXTERNAL SERVICE AND POSITIONS

Professional society membership

- American Chemical Society (Since 2005)
- Materials Research Society (Since 2005)
- American Physical Society (Since 2011)
- The Minerals, Metals and Materials Society (Since 2014)

Journal Editorships

- Editorial Board- Magnetochemistry – Open Access Molecular Magnetism and Magnetic Materials Journal – August 2014 - present
- Associate Editor- *Journal of Nanoscience Letters* –July 2014-present
- Associate Editor- *Reviews in Advanced Sciences and Engineering* – January 2011- Present
- Editorial Board - *Journal of Nanoengineering and Nanomanufacturing*" –October 2010 - Present
- Guest Editor- Special Issue "Advanced Thermoelectric Materials and Devices" published by *Science of Advanced Materials* – August 2011

Proposal Reviews

National Science Foundation - NSF (since 2008)	Austrian Science Foundation (2011)
ARPA-E, Department of Energy (2013, 2015)	Israel National Science Foundation (March 2015)
NSF- MRSEC (2013)	Chile National Science Foundation (2015)
DOE-BES (2014, 2015, 2016)	DAAD (2015)
DOE-EPSCoR (2014)	Poland National Science Center (2017)
ACS-PRF (2015, 2017)	Hong Kong University (2015)
DOE Early Career Program (2015)	Shanghai Jiao Tong University (2016)
DOE Graduate Research Program (2016)	Tianjin University (2016, 2017)

STUDENTS SUPERVISION

PhD Students

Name	Joined	Expected Graduation
Alan Olvera	Fall 2012	December 2017
Juan Lopez	Fall 2013	Winter 2018
Ruiming Lu	Fall 2015	Fall 2020
Brandon Buschanan	Fall 2016	Fall 2021

Master Students

Name	Joined	Expected Graduation
Yiqiao Huang	Fall 2016	Winter 2018
Lamia Dawahre	Fall 2017	Winter 2020

PhD Graduates

1. Dr. Pranati Sahoo, October 22, 2013, "Nanostructured Semiconductors for Thermoelectric Energy Conversion: Synthesis and Transport Properties"; MSE nominee for Rackham Distinguished Dissertation Award 2013; Current position: Scientist, Axiom Consulting Private Limited, India
2. Dr. Honore Djieutedjeu, November 08, 2013, "Complex transition metal chalcogenide ferromagnetic semiconductors with general formula MSb_2Se_4 (M = Mn, Fe): Synthesis and characterization"; Exit position: Visiting Lecturer, Department of Chemistry, Indiana University Southeast; Current position: Scientist at Intel Corporation, Idaho
3. Dr. Yuanfeng Liu, April 2015, "Thermoelectric behavior of Quantum Dots Engineered n-type Bulk (Ti,Zr)Ni_{1+x}Sn nanocomposites", Current position: Unknown)
4. Erica Chen, Fall 2016, "Lithium Transition Metal Dichalcogenides (TMDCs) Intercalation Compounds for Batteries"; Current position: Scientist at LAM Research, California.
5. Nicholas Moroz, Winter 16, "Multifunctional Copper Chalcogenides 2D nanosheets via Redox-Induced Structural Phase Transformations"; Current position: Chief Technology Officer at Detroit Materials, Michigan.
6. Alan Olvera, Winter 2017, "Multifunctional Metamaterials via Redox-Induced Structural Phase Transformations"; Current position: Postdoc at University of Michigan.

Postdoctoral Associates Mentored

1) Dr. Mal-Soon Lee, Feb. 2009 – Feb. 2011, (PhD University of Pune/ India); Project: "Investigation of the electronic band structure and thermoelectric properties of half-Heusler compounds"; Current Position: Visiting Professor of Physics, Grand Valley State University

2) Dr. Dinesh Misra, Oct. 2008 – Aug. 2011, (PhD. Banaras Hindu University/ India); Project: "Investigation of the microstructure of half-Heusler/full-Heusler nanocomposites using transmission electron microscopy"; Current Position: Senior Scientist E1, National Physical Laboratory (NPL), New Delhi, India

3) Dr. Nathan Takas, October 2008 – July 2012, (PhD Duquesne University); Project: "Thermoelectric behavior of half-Heusler/full-Heusler nanocomposites" ; Current Position: Chemical Instrumentation Manager, Department of Chemistry, Georgia Southern University

4) Dr. Kulugammana G. S. Ranmohotti, December 2010 – August 2012), (PhD Clemson University)
Project: "Synthesis and characterization of MBi_2Q_4 (M = Mn, Fe; Q = S, Se) ferromagnetic semiconductors for spintronic applications"; Current Position: Assistant Professor, Department of Chemistry, Governor State University

5) Dr. Julien Makongo, May 2009 – March 2013, (PhD MPI-CPFS, Dresden Germany); Project: "Design, synthesis and characterization of thermoelectrically relevant nanostructured intermetallic materials"; Current Position: Postdoctoral Fellow at the University of Delaware

Outreach activities: Mentor to over 40 undergraduate students; 07 high school students and 02 high school teachers;

RESEARCH FUNDING

Title	Duration	Funding level	Agency	PI	Co-PI
Tailoring Charge Transport and Magnetism in Complex Half-Heusler/Full-Heusler Nanocomposites	09/01/12-12/31/17	$1,730,000	Department of Energy (DOE)	Pierre F. Poudeu	Ctirad Uher
Understanding Electronic and Magnetic Interactions in Complex Mixed Metal Chalcogenides	06/01/16-05/31/19	$520,000	National Science Foundation (NSF)	Pierre F. Poudeu	E. Kioupakis

MRI: Acquisition of Cryogen-Free High Magnetic Field Physical Property Measurement System	08/01/14 – 07/31/17	$474,642	National Science Foundation (NSF)	Li Lu	Pierre F. Poudeu
Mixed Transition-Metal Sulfides and Sulfo-Fluorides for Rechargeable Li-ion Batteries	01/01/13-08/31/15	$100,000	American Chemical Society – Petroleum Research Fund (ACS-PRF)	Pierre F. Poudeu	
CAREER: Understanding and Controlling the Integration of Magnetism into Semiconducting Mixed Metal Chalcogenides	02/15/10 - 01/31/15	$617,500	National Science Foundation	Pierre F. Poudeu	
Graduate Fellowships for the Chemistry Doctoral Program at the University of New Orleans	06/01/11-05/31/16	$120,000	Louisiana Board of Regents	John Wiley	Pierre F. Poudeu
Acquisition of a Spark Plasma Sintering System for Nanocomposite Research and Education	06/01/11-05/31/12	$293,000	Louisiana Board of Regents	Pierre F. Poudeu	Kevin Stokes
Hall Effect/Nernst Effect Low Temperature Measurement System for Research and Education in Electronic Materials	06/01/11-05/31/12	$84,466	Louisiana Board of Regents	Kevin Stokes	Pierre F. Poudeu
Extending the Temperature Range of Existing VSM/AGM Magnetometer	06/01/11-05/31/12	$108,000	Louisiana Board of Regents	Leonard Spinu	Pierre F. Poudeu
Graduate Fellowships for the Chemistry Doctoral Program at the University of New Orleans	06/01/11-05/31/15	$240,000	Louisiana Board of Regents	John Wiley	Pierre F. Poudeu
Low Thermal Conductivity Thermoelectric Nanocomposites with Enhanced Mechanical Properties	06/01/11-05/31/12	$720,000	*Defense Advanced Research Project Agency (DARPA*)	Charles O'Connor	Pierre F. Poudeu
Exploration of the Matrix Encapsulation Method for the Fabrication of Bulk Half-Heusler Nanocomposites	01/01/10-09/30/11	$10,000	Louisiana Board of Regents	Pierre F. Poudeu	
Laser Flash Apparatus for High Temperature Determination of Thermal Diffusivity of Materials	06/01/08 - 05/31/09	$203,310	Louisiana Board of Regents	Pierre F. Poudeu	
Purchase of a Single-Crystal X-ray, Diffractometer for Structural Studies in Medicinal and Materials Chemistry	06/01/08 - 05/31/09	$194,980	Louisiana Board of Regents	Edwin Stevens	Pierre F. Poudeu
Nanostructured Composite Materials for High Temperature Thermoelectric Energy Conversion	05/01/08-05/31/11	$3,900,000	*Defense Advanced Research Project*	Charles O'Connor	Pierre F. Poudeu

			Agency (DARPA)		
Exploratory synthesis and characterization of new quaternary transition metal-tin- bismuth-chalcogenides	04/01/08-03/31/09	$10,000	Louisiana Board of Regents	Pierre F. Poudeu	

INVITED/KEYNOTE TALKS: *Over 50 invited talks at universities and international conferences*

1. Nanointerface Engineering of Electronic Transport in bulk Nanostructured half-Heusler alloys Workshop on Advanced Materials and Principles to Develop Viable Thermoelectrics and Effective Thermal Management, WPI-MANA Building, NIMS, Tsukuba, Japan, September 2, 2017
2. Topochemical approach to Earth-abundant materials for energy conversion, Advances in Solid State Chemistry Symposium, 100th Canadian Chemistry Conference and Exhibition, Toronto, Canada, May 28 - June 1, 2017
3. Partial Indium Solubility Induces Chemical Stability and Boots the Thermoelectric Performance of Cu_2Se, 36th International Conference on Thermoelectrics (ICT 2017) Pasadena, CA, USA, July 31st - August 03, 2017.
4. Partial Indium Solubility Induces Chemical Stability and Boots the Thermoelectric Performance of Cu_2Se, Symposium A-5: Thermoelectric materials for sustainable development IUMRS-ICAM2017: The 15th International Conference on Advanced Materials, Kyoto, Japan, August 27 – September 01, 2017
5. Earth-abundant photovoltaic material with ultra-large absorption coefficient, Symposium A-1: Light energy conversion materials IUMRS-ICAM2017: The 15th International Conference on Advanced Materials, Kyoto, Japan, August 27 – September 01, 2017
6. Thermoelectric enhancement of Cu_2Se by $CuInSe_2$ incorporation, Alloys and Compounds for Thermoelectric and Solar Cell Applications V, 2017 TMS Annual Meeting at San Diego, California, February 25 – March 02, 2017.
7. Nanointerface Engineering of Electronic and Phonon Transports in Nanostructured Semiconductors, School of Materials Science and Engineering, Zhejiang University, June 7 2016, Hangzhou, China.
8. Electronic and thermal transports in nanostructured Cu_2Se-based Thermoelectric Materials, The 35th International Conference on Thermoelectrics (ICT- 2016) & The 1st Asian Conference on Thermoelectrics (ACT-2016) May 29 –June 2, 2016, Wuhan, China
9. Nanostructured Cu_2Se-based Materials for Energy Conversion, Department of Materials Science and Engineering, Nanyang Technological University, May 24 2016, Singapore.
10. Nanostructured Cu_2Se-based Materials for Energy Conversion, CAS Key Laboratory of Materials for Energy Conversion Shanghai Institute of Ceramics, Chinese Academy of Sciences, May 26 2016, Shanghai, China.
11. Tailoring Magnetism and Electronic Transport in MPn_2Se_4 Semiconductors Inorganic Materials, Nanomaterials, and Solid-State Chemistry 47th Central Regional Meeting CERMACS, May 18, 2016, Covington, KY.
12. FeM_2Se_4: a fascinating family of high-T_c ferromagnetic semiconductors, ACS Award in Inorganic Chemistry: Symposium in honor of Mercouri G. Kanatzidis, ACS Spring Meeting, San Diego, March 13 – 27, 2016.
13. Nanointerface Engineering of Electronic Transport in bulk Nanostructured in half-Heulser alloys, Alloys and Compounds for Thermoelectric and Solar Cell Applications IV, 2016 TMS Annual Meeting at Nashville, Tennessee, February 14 – 18, 2016.
14. MPn_2Se_4: a fascinating family of (anti) ferromagnetic semiconducting selenides, Department of Chemistry Seminar Series, University of Waterloo, Canada, January 11, 2016.

15. Electronic Transports in Quantum Dot Engineered Semiconductors, The 60th Department of Atomic Energy, Solid State Physics Symposium (DAE-SSPS-2015), Amity University UP, Noida, Uttar Pradesh, December 21-25, 2015.
16. Electronic Transports in Quantum Dot Engineered Semiconductors, Seminar at National Physical Laboratory, New Delhi, India, December 22, 2015.
17. Electronic Transports in Quantum Dot Engineered Semiconductors, New Chemistry Unit Seminar, Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) Jakkur, Bangalore- 560 064, December 18, 2015.
18. Electron and Phonon Transport in Semiconductor Nanocomposites, HEATER Thermoelectric School, University of Toronto, November 9-13, 2015.
19. Electron and Phonon Transport in Nanostructured Semiconductors, DOE 2015 Synthesis and Processing Science Principal Investigators' Meeting, Gaithersburg, MD, November 2-4, 2015.
20. Electronic and Phonon Transports in Half-Heusler-Full-Heusler Nanocomposites, State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan, China, September 05, 2015.
21. Electronic and Phonon Transports in Half-Heusler/Full-Heusler Nanocomposites, Symposium 26 "Direct Thermal to Electrical Energy Conversion Materials & Applications (DTEC Materials and Applications), PacRim11, August 30 to September 04, 2015, ICC Jeju, Jeju, Korea.
22. Electronic and Phonon Transports in Half-Heusler-Full-Heusler Nanocomposites, School of Chemical and Biological Engineering Seminar Series, Seoul National University, Seoul, Korea, August 28, 2015.
23. Electronic and Phonon Transports in Half-Heusler-Full-Heusler Nanocomposites, Department of Chemistry and Nanoscience Seminar Series, Ewha Womans University, Seoul 120-750, Korea, August 27, 2015.
24. Multifunctional Copper Chalcogenides via Redox-Induced Solid-State Phase Transformations, Symposium: "Materials for Heat to Energy Conversion" ACS Fall 2015 Meeting, August 16 – 20, 2015, Boston MA.
25. Tailoring Electronic and Phonon Transports in Bulk Half-Heusler Semiconductors using Coherent Heusler Nanostructures; 2nd Indo-US Workshop on Thermoelectrics: Recent Trends in Thermoelectric Materials: Fundamentals to Applications, December 15th to 17th 2014, New Delhi, India.
26. Tailoring Electronic and Phonon Transports in Bulk Half-Heusler Semiconductors using Coherent Heusler Nanostructures; Symposium YY: Advanced Structural and Functional Intermetallic-Based Alloys, MRS Fall 2014, December 3rd 2014, Boston, MA.
27. "Multifunctional Copper Chalcogenides via Redox-Induced Solid-State Phase Transformations", 2014 Solid State Chemistry Gordon Research Conference, July 27-August 1, 2014, Colby-Sawyer, NH.
28. "Bulk and Nanostructured Semiconductors for Energy and Spintronic Applications", Applied Physics Program Seminar Series, University of Michigan, March 26, 2014.
29. "Geometrical Spin Frustration and Ferromagnetic Ordering in $(Mn_xPb_{2-x})Pb_2Sb_4Se_{10}$;" Symposium: Solid State Inorganic Chemistry, ACS Spring 2014 Meeting, March 16-20, Dallas, TX.
30. "Electronic and Phonon Transports in Bulk Quantum Dots Engineered Semiconductors" Symposium: Nanomaterials for Energy Capture, Conversion and Storage, ACS Spring 2014 Meeting, March 16-20, Dallas, TX.
31. "Electronic Transports and Ferromagnetism in the p-type $FeSb_{2-x}Sn_xSe_4$ Semiconductor", Symposium OO: Solid-State Chemistry of Inorganic Materials, MRS Fall 2013 Meeting, December 05, 2013, Boston MA.
32. "Electronic and Phonon Transports in Bulk Quantum Dots Engineered Half-Heusler Nanocomposites", Center for Solar and Thermal Energy Conversion (CSTEC) 2013-2014 Seminary Series, University of Michigan, October 07 2013

33. "Integration and Manipulation of Magnetism in Semiconducting Transition Metal Chalcogenides", North American Solid State Chemistry Conference, June 23-26, 2013, Oregon State University, Corvallis, Oregon
34. "Electronic and Phonon Transport in Bulk Quantum Dot Engineered Semiconductors" Department of Chemistry, University of Buffalo; February 13, 2013, Buffalo, NY, USA.
35. "Strategies to High Performance Quantum Dot Engineered Thermoelectric Materials", First Joint US - Africa Materials Institute School on "Materials for Sustainable Energy" December 13, 2012, Addis Ababa, Ethiopia
36. "Electronic and Phonon Transport in Bulk Quantum Dot Engineered Semiconductors"; Department of Chemistry, Virginia Commonwealth University; November 08, 2012, Richmond, VA, USA.
37. "Electronic and Phonon Transport in Bulk Quantum Dot Engineered Semiconductors"; International Conference and Expo on Materials Science & Engineering, October 22, 2012, Chicago, Illinois, USA.

38. "Electronic and Phonon Transport in Bulk Quantum Dot Engineered Semiconductors", Department of Physics, University of Central Michigan; October 11, 2012, Mount Pleasant, MI, USA.

RECENT PUBLICATIONS (2010 – 2017) (Corresponding author(s) indicated with*)

1. Alan Olvera, Nicholas A. Moroz, Pranati Sahoo, Pan Ren, Trevor P. Bailey, Alexander A. Page, Ctirad Uher and Pierre F.P. Poudeu*, Partial indium solubility induces chemical stability and colossal thermoelectric figure of merit in Cu_2Se" *Energy & Environmental Science*, **2017**, 10, 1668 – 1676.
2. Erica M. Chen, Stanislav S. Stoyko, Jennifer A. Aitken and Pierre F. P. Poudeu*, Tuning the optical, electronic and thermal properties of $Cu_3NbS_{4-x}Se_x$ through chemical substitution, Inorg. Chem. Front., **2017**, 4, 1493-1500. (Invited paper)
3. Joseph Casamento[+], Juan Lopez[+], Nicholas Moroz, Alan Olvera, Honore Djieutedjeu, and Pierre F. P Poudeu*, Crystal structure and thermoelectric properties of the ^{7,7}L lillianite homologue, $Pb_6Bi_2Se_9$**,** *Inorg. Chem.* **2017**, 56, 261–268.
4. N A Moroz, J S Lopez, H Djieutedjeu, K G S Ranmohotti, N J Takas, P F P Poudeu*, Indium preferential distribution enables electronic engineering of magnetism in $FeSb_{2-x}In_xSe_4$ p-type high-Tc ferromagnetic semiconductors, *Chem. Mater*. **2016**, 28, 8570–8579.
5. Trevor P. Bailey, Si Hui, Hongyao Xie, Alan Olvera, Pierre F. P. Poudeu, Xinfeng Tang and Ctirad Uher*, Enhanced ZT and attempts to chemically stabilize Cu_2Se via Sn doping, J. *Mater. Chem. A* **2016**, 4, 17225.
6. Alexander Page, Anton Van der Ven, P.F.P. Poudeu, Ctirad Uher*, Origins of phase separation in thermoelectric (Ti, Zr, Hf)NiSn half-Heusler alloys from first principles, J. *Mater. Chem. A* **2016**, 4, 13949.
7. Alexander Page, P.F.P. Poudeu, Ctirad Uher*, A first-principles approach to half-Heusler thermoelectrics: Accelerated prediction and understanding of material properties, J Materiomics **2016**, 2, 104-113.
8. Yuanfeng Liu, Julien P.A. Makongo, Alexander Page, Pranati Sahoo, Ctirad Uher, Kevin Stokes, Pierre F.P. Poudeu*, Distribution of impurity states and charge transport in $Zr_{0.25}Hf_{0.75}Ni_{1+x}Sn_{1-y}Sb_y$ nanocomposites, *Journal of Solid State Chemistry*, **2016**, 234, 72 – 86.
9. Alan Olvera, Pranati Sahoo, Stephanie Tarczynski, and Pierre F.P. Poudeu*, Topochemical Solid-State Reactivity: Redox-Induced Direct Structural Transformation from $CuSe_2$ to $CuInSe_2$, *Chem. Mater*. **2015**, 27, 7179 − 7186.
10. Pierre F. P. Poudeu*, Julien P. A. Makongo, Yuanfeng Liu, Dinesh K. Misra, Pranati Sahoo and Kevin L. Stokes, Thermoelectric behavior of nanostructured $Zr_{0.25}Hf_{0.75}NiCo_xSn$ half-Heusler alloys, *Sci. Adv. Today*, **2015**, 1, 25209.
11. Yuanfeng Liu, Pierre F.P. Poudeu*, Thermoelectric properties of Ge doped n-type $Ti_xZr_{1-x}NiSn_{0.975}Ge_{0.025}$ half-Heusler alloys, *Journal of Materials Chemistry A*, **2015**, 3, 12507.

12. Honore Djieutedjeu, Alan Olvera, Alexander Page, Ctirad Uher, and Pierre F. P. Poudeu*, High-Tc Ferromagnetism and Electron Transport in p-Type $Fe_{1-x}Sn_xSb_2Se_4$ Semiconductors, *Inorg. Chem.* **2015**, 54, 10371–10379.
13. Erica M. Chen and Pierre F. P. Poudeu*, Thermal and electrochemical behavior of $Cu_{4-x}Li_xS_2$ (x = 1, 2, 3) phases, *Journal of Solid State Chemistry*, **2015**, 232, 8–13.
14. Nicholas A. Moroz, Alan Olvera, Gabriella M. Willis, Pierre F. P. Poudeu*, Rapid Direct Conversion of $Cu_{2-x}Se$ to CuAgSe Nanoplatelets via Ions Exchange Reactions at Room Temperature, *Nanoscale*, **2015**, 7, 9452 – 9456.
15. Misra D., Sumithra S., Poudeu P.F.P., Stokes K. L., Correlation between microstructure and drastically reduced lattice thermal conductivity in Bi_2Te_3 /Bi nanocomposites for high thermoelectric figure of merit, *Materials Science in Semiconductor Processing*, **2015**, 40, 453–462.
16. Kulugammana G. S. Ranmohotti, Honore Djieutedjeu, Juan Lopez, Alexander Page, Neel Haldolaarachchige, Hang Chi, Pranati Sahoo, Ctirad Uher, David Young, and Pierre F. P. Poudeu*, Coexistence of High-T_C Ferromagnetism and *N*-type Electrical Conductivity in $FeBi_2Se_4$, *Journal of the American Chemical Society* **2015**, 137, 691−698.
17. Alan Olvera, Guangsha Shi, Honore Djieutedjeu, Alexander Page, Ctirad Uher, Emmanouil Kioupakis, and Pierre F. P. Poudeu*, $Pb_7Bi_4Se_{13}$: A Lillianite (^{4,5}L) Homologue with Promising Thermoelectric Properties, *Inorganic Chemistry* **2015**, 54, 746−755. (Invited contribution).
18. Honore Djieutedjeu, Xiaoyuan Zhou, Hang Chi, Neel Haldolaarachchige, Kulugammana G. S. Ranmohotti, Ctirad Uher, David Young, Pierre F. P. Poudeu*, Donor and Acceptor Impurities-Driven Switching of Magnetic Ordering in $MnSb_{2-x}Sn_xSe_4$, *Journal of Materials Chemistry C* **2014**, 2, 6199 – 6210.
19. Pranati Sahoo, Yuanfeng Liu and Pierre F. P. Poudeu*, Nanometer scale interface engineering boosts the thermoelectric performance of n-type $Ti_{0.4}Hf_{0.6}Ni_{1+z}Sn_{0.975}Sb_{0.025}$ alloys, *Journal of Materials Chemistry A* **2014**, 2, 9298 – 9305.
20. Yuanfeng Liu, Alexander Page, Pranati Sahoo, Hang Chi, Ctirad Uher and Pierre F. P. Poudeu*, Electronic and Phonon Transports in Sb-doped $Ti_{0.1}Zr_{0.9}Ni_{1+x}Sn_{0.975}Sb_{0.025}$ Nanocomposites, *Dalton Transactions* **2014**, *43*, 8094-8101.
21. Johanna D. Burnett, Olivier Gourdon, Kulugammana G. S. Ranmohotti, Nathan J. Takas, Honore Djieutedjeu, Pierre F.P. Poudeu, Jennifer A. Aitken*, Structure-Property Relationships Along the Fe-substituted $CuInS_2$ Series: Tuning of Thermoelectric and Magnetic Properties, *Materials Chemistry and Physics*, **2014**, 147, 17 – 27.
22. Pierre F. P. Poudeu*, Honore Djieutedjeu, Kulugammana G. S. Ranmohotti, Julien P. A. M. Makongo, Nathan Takas, Geometrical Spin Frustration and Ferromagnetic Ordering in $(Mn_xPb_{2-x})Pb_2Sb_4Se_{10}$, *Inorganic Chemistry* **2014**, 53, 209−220.
23. Yuanfeng Liu, Pranati Sahoo, Julien P. A. Makongo, Xiaoyuan Zhou, Sung-Joo Kim, Hang Chi, Ctirad Uher, Xiaoqing Pan and Pierre F. P. Poudeu*; Large Enhancements of Thermopower and Carrier Mobility in Quantum Dots Engineered Bulk Semiconductors; *Journal of the American Chemical Society* **2013**, 135, 7486−7495.
24. Pranati Sahoo, Yuanfeng Liu, Julien P. A. Makongo, Xian-Li Su, Sung Joo Kim, Nathan Takas, Hang Chi, Ctirad Uher, Xiaoqing Pan, Pierre F. P. Poudeu*, Full-Heusler nanostructures Boost Thermopower and Hole Mobility in Bulk *p*-type Half-Heuslers, *Nanoscale* **2013**, 5, 9419-9427.
25. Pranati Sahoo, Honore Djieutedjeu, Pierre F. P. Poudeu*, Co_3O_4 Nanostructures: Effect of Synthesis Conditions on Particles Size, Magnetism and Transport Properties, *Journal of Materials Chemistry A* **2013**, 1, 15022–15030.
26. J.P.A. Makongo, X. Zhou, D. K. Misra, C. Uher, P.F.P. Poudeu*, Correlation between processing conditions, microstructure and charge transport in half-Heusler alloys, *Journal of Solid State Chemistry* **2013**, 201, 280–287.
27. P. Maji, J.P.A. Makongo, X. Zhou, H. Chi, C. Uher, P.F.P. Poudeu*, Thermoelectric performance of nanostructured p-type $Zr_{0.5}Hf_{0.5}Co_{0.4}Rh_{0.6}Sb_{1-x}Sn_x$ half-Heusler alloys, *Journal of Solid State Chemistry* **2013**, 202, 70–76.

28. Kulugammana G. S. Ranmohotti, Honore Djieutedjeu, Pierre F. P. Poudeu*, Chemical Manipulation of Magnetic Ordering in $Mn_{1-x}Sn_xBi_2Se_4$ Solid−Solutions, *Journal of the American Chemical Society* **2012**, 134, 14033−14042.
29. Pierre F. P. Poudeu*, Honore Djieutedjeu, Pranati Sahoo, Crystal Structure of $FePb_4Sb_6Se_{14}$ and its Structural Relationship with $FePb_3Sb_4Se_{10}$, *Zeitschrift für Anorganische und Allgemeine Chemie* **2012**, 638, 2549−2554. (Invited)
30. Girija S. Chaubey, Yuan Yao, Julien P. A. Makongo, Pranati Sahoo, Dinesh Misra, Pierre F. P. Poudeu, John B. Wiley*, Microstructural and thermal investigations of HfO_2 nanoparticles, *RSC Advances*, **2012**, 2, 9207–9213.
31. Pranati Sahoo, Dinesh K. Misra, Jim Salvador, Julien P.A. Makongo, Girija S. Chaubey, Nathan J. Takas, John B. Wiley, Pierre F.P. Poudeu*, Microstructure and thermal conductivity of surfactant-free NiO nanostructures, *Journal of Solid State Chemistry* **2012**, 190, 29–35.
32. S. Sumithra, Nathan J. Takas, Westly M.Nolting, Sanshrut Sapkota, Pierre F. P. Poudeu, Kevin L. Stokes*, Effect of NiTe nanoinclusions on thermoelectric properties of Bi_2Te_3, *Journal of Electronic Materials* **2012**, 41, 1401 – 1407.
33. Julien P. A. Makongo, Dinesh K. Misra, Xiaoyuan Zhou, Aditya Pant*, Michael R. Shabetai, Xianli Su, Ctirad Uher, Kevin L. Stokes, Pierre F. P. Poudeu*, Simultaneous Large Enhancements in Thermopower and Electrical Conductivity of Bulk Nanostructured Half-Heusler Alloys, *Journal of the American Chemical Society* **2011**, 133, 18843-18852.
34. Honore Djieutedjeu, Julien P. A. Makongo, Aurelian Rotaru, Andriy Palasyuk, Nathan J. Takas, Xiaoyuan Zhou, Kulugammana G. S. Ranmohotti, Leonard Spinu, Ctirad Uher, Pierre F. P. Poudeu*, Crystal Structure, Charge Transport, and Magnetic Properties of $MnSb_2Se_4$, *European Journal of Inorganic Chemistry* **2011**, 3969–3977. (Invited contribution)
35. S. Sumithra, Nathan J. Takas, Dinesh K. Misra, Westly M. Nolting, P.F.P. Poudeu, Kevin L. Stokes*, "Enhancement in thermoelectric figure of merit in nanostructured Bi_2Te_3 with semimetal nanoinclusions" *Advanced Energy Materials* **2011**, 1, 1141–1147.
36. J. P. A. Makongo, D. K. Misra, J. R. Salvador, N. J. Takas, G. Wang, M. R. Shabetai*, Aditya Pant*, Pravin Paudel*, Ctirad Uher, Kevin L. Stokes, Pierre F.P. Poudeu*, Thermal and Electronic Charge Transport in Bulk Nanostructured $Zr_{0.25}Hf_{0.75}NiSn$ Composites with Full-Heusler Inclusions, *Journal of Solid State Chemistry* **2011**, 184, 2948-2960.
37. Pierre F. Poudeu*, James Salvador, Jeffrey Sakamoto, A Special Issue on Advanced Thermoelectric Materials and Devices, *Science of Advanced Materials* **2011**, 3, 515–516. (Guest Editorial)
38. Dinesh K. Misra, Julien P. A. Makongo, Pranati Sahoo, Michael R. Shabetai*, Pravin Paudel*, Kevin L. Stokes, Pierre F. P. Poudeu*, Microstructure and Thermoelectric Properties of Mechanically Alloyed $Zr_{0.5}Hf_{0.5}Ni_{0.8}Pd_{0.2}Sn_{0.99}Sb_{0.01}/WO_3$ Half-Heusler Composites, *Science of Advanced Materials* **2011**, 3, 607–614.
39. Nathan J. Takas, Michael R. Shabetai, Pierre F. P. Poudeu*, Effect of Sn Doping on the Thermoelectric Performance of the Complex p-Type $Zr_{0.5}Hf_{0.5}Co_{0.3}Ir_{0.7}Sb_{1-y}Sn_y$ Half-Heusler System, *Science of Advanced Materials* **2011**, 3, 571–576.
40. Melody A. Verges*, Paul J. Schilling, Puja Upadhyay, William K. Miller, Rumana Yaqub, Kevin L. Stokes, Pierre F. P. Poudeu, Young's Modulus and Hardness of $Zr_{0.5}Hf_{0.5}Ni_xPd_{1-x}Sn_{0.99}Sb_{0.01}$ Half-Heusler Compounds, *Science of Advanced Materials* **2011**, 3, 659–666.
41. Rumana Yaqub, Pranati Sahoo, Julien P.A. Makongo, Nathan Takas, Pierre F. P. Poudeu, Kevin L.Stokes, Investigation of the Effect of NiO Nanoparticles on the Transport Properties of $Zr_{0.5}Hf_{0.5}Ni_{1-x}Pd_xSn_{0.99}Sb_{0.01}$ (x=0 and 0.2), *Science of Advanced Materials* **2011**, 3, 633–638.
42. N.J. Takas, P. Sahoo, D.K. Misra, H. Zhao, N. L. Henderson, K. L. Stokes, P.F.P. Poudeu*, Effects of Ir Substitution and Processing Conditions on the Thermoelectric Performance of the p-type $Zr_{0.5}Hf_{0.5}Co_{1-x}Ir_xSb_{0.99}Sn_{0.01}$ half-Heusler Alloys, *Journal of Electronic Materials* **2011**, *40,* 662 – 669.
43. M-S. Lee, P.F.P. Poudeu, S. D. Mahanti*, Electronic structure and thermoelectric properties of Sb-based semiconducting half-Heusler compounds, *Physical Review B* **2011**, 83, 085204.
44. S. Sumithra, D.K. Misra, C. Wei, H. Gabrisch**,** P.F.P. Poudeu, K.L. Stokes*, Solvothermal synthesis and analysis of $Bi_{1-x}Sb_x$ nanoparticles, *Materials Science and Engineering B* **2011**, 176, 246–251.

45. Jinlei Yao, Nathan J. Takas, Megan L. Schliefert, David S. Paprocki, Peter E. R. Blanchard, Huiyang Gou, Arthur Mar, Christopher L. Exstrom, Scott A. Darveau, Pierre F. P. Poudeu, Jennifer A. Aitken*, Thermoelectric properties of *p*-type $CuInSe_2$ chalcopyrites enhanced by introduction of manganese, *Physical Review B* **2011**, 84, 075203.
46. H. Djieutedjeu, P.F.P. Poudeu*, N.J. Takas, J.P.A. Makongo, A. Rotaru, Ranmohotti, K.G.S. C. J. Anglin, L. Spinu, J.B. Wiley, Structural Distortion Driven Cooperative Magnetic and Semiconductor-to-Insulator Transitions in Ferromagnetic $FeSb_2Se_4$, *Angewandte Chemie International Edition* **2010**, *49*, 9977 – 9981. (Listed as Hot Topics on magnetic materials).
47. P.F.P. Poudeu*, N. Takas, C. Anglin, J. Eastwood*, A. Rivera[#], $Fe_xPb_{4-x}Sb_4Se_{10}$: A New Class of Ferromagnetic Semiconductors with Quasi 1D [Fe_2Se_{10}] Ladders, *Journal of the American Chemical Society* **2010**, *132*, 5751 – 5760.
48. P. Maji, N. J. Takas, D. K. Misra, H. Gabrisch, K. Stokes, P. F. P. Poudeu*, Effects of Rh on the thermoelectric performance of the *p*-type $Zr_{0.5}Hf_{0.5}Co_{1-x}Rh_xSb_{0.99}Sn_{0.01}$ half-Heusler alloys, *Journal of Solid State Chemistry* **2010**, *183*, 1120 – 1126.
49. C. Anglin, N. J. Takas, J. Callejas*, P. F. P. Poudeu*, "Crystal structure and physical properties of the quaternary manganese-bearing pavonite homologue $Mn_{1.34}Sn_{6.66}Bi_8Se_{20}$, *Journal of Solid State Chemistry* **2010**, *183*, 1529 – 1535.