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Education:

Ecole Polytechnique de Louvain, Université Catholique de Louvain (University of Louvain), Belgium
1978: Doctor of Applied Sciences, Physics (Docteur en Sciences Appliquées)
1975: Bachelor in Electrical Engineering (Ingénieur Civil Electricien)

Positions:

2005 – Present: Ohio Eminent Scholar and Professor, The Ohio State University, Department of Mechanical and Aerospace Engineering, Department of Physics (Courtesy), and Department of Material Science and Engineering (Courtesy).
2000 - 2005: Research Fellow, Delphi Corporation, Delphi Research Labs.
1999: Principal Research Scientist, Delphi Automotive Systems, Delphi Research Labs.
1989 - 1998: Principal Research Scientist, GM Research Labs (later GM Research & Development Center).
1989: Visiting Professor, Physics and Physical Chemistry Department, University of Louvain, Belgium.
1987 - 1989: Senior Staff Research Scientist, GM Research Labs.
1987 - 1998: Manager of the Semiconductor Materials Section, GM Research & Development Center, Physics and Physical Chemistry Department.
1985 - 1987: Staff Research Scientist, GM Research Labs.
1985 - 1987: Group Leader of the Electrooptical Physics group, GM Research Labs.
1984: Senior Research Scientist, Physics Department, GM Research Labs.
1978 - 1983: Researcher, Fonds National Belge de la Recherche Scientifique (FNRS, Belgian National Science Foundation).
1982: Visiting Scientist, Institute for Solid State Physics, University of Tokyo.
1980, 1981: Visiting Scientist, Massachusetts Institute of Technology.
1979, 1983: Visiting Scientist, H.C. Oersted Institute, University of Copenhagen.
1979: Military service in the Belgian Army, Royal Military School, Plasma Physics Laboratory.
1975 - 1978: Research fellowship, Belgian Institute for Research in Industry and Agriculture (IRSIA), used toward obtaining a doctorate at the Catholic University of Louvain.

Publications (ORCID 0000-0003-3996-2744):

- >250 publications in refereed journals and conference proceedings (ISI numbers: >12500 citations, h=51)
- Y. Zheng, T. Lu, Md M. H. Polash, M. Rasoulianboroujeni, N. Liu, M. E. Manley, Y. Deng, P. J. Sun, X. L. Chen, R. P. Hermann, D. Vashaee, J. P. Heremans, and H. Zhao, “Paramagnon drag in high thermoelectric figure of merit Li-doped MnTe”, *Science Advances*, eaat9461, 2019 (*IF*=12.08)
 - He, B., Wang, Y., Arguilla, M. Q., Cultrara, N. D., Scudder, M. R., Goldberger, J. E., Windl, W., and Heremans, J. P., “The Fermi Surface Geometrical Origin of Axis-Dependent Conduction Polarity in Layered Materials,” *Nature. Materials*. **18** 568-72 (2019) <https://doi.org/10.1038/s41563-019-0309>, 2019) (*IF*=39.737).
 - Heremans, J. P., Cava, R. J., and Samarth, N. (2017), “Tetradymites as Thermoelectrics and Topological Insulators,” *Nature Reviews Materials* **2** 17049 (2017) (doi:10.1038/natrevmats.2017.49) [cover] (*IF*=74.449)
 - Heremans, J. P., “A New Member of the Hall Family,” *Nature Materials* **16**, 968-9 (2017) (*IF* = 39.737).
 - Boona, S. R., Vandaele, K., Boona, I. N., McComb, D. W., & Heremans, J. P., “Observation of Spin Seebeck Contribution to the Transverse Thermopower in Ni-Pt and MnBi-Au Bulk Nanocomposites,” *Nature Communications* **7**, 13714 (2016) (<http://dx.doi.org/10.1038/ncomms13714>) (*IF* = 12.124). [featured image]

- Jin, H., Restrepo, O. D., Antolin, N., Boona, S. R., Windl, W., Myers, R. C., and Heremans, J. P., “The Phonon-induced Diamagnetic Force and its Effect on the Lattice Thermal Conductivity,” *Nature Materials* **14**, 601-606 (2015) (<http://dx.doi.org/10.1038/nmat4247>) (*IF* = 39.737) [cover].
- Boona, S. R., Myers, R. C., and Heremans, J. P., “Spin Caloritronics,” *Energy Environ. Sci.*, **7**, 885-910 (2014) (<http://dx.doi.org/10.1039/C3EE43299H>) (*IF* = 29.518).
- Heremans, J. P., Dresselhaus, M. S., Bell, L., and Morelli, D. T., “When Thermoelectrics Reached the Nanoscale,” *Nature Nanotechnology* **8**, 471-473 (2013) (*IF* = 38.986).
- Jaworski, C. M., Myers, R. C., Johnston-Halperin, E., and Heremans, J. P., “Giant Spin Seebeck Effect in a Non-magnetic Material,” *Nature* **487**, 210-213 (2012) (*IF* = 40.137) [cover].
- Nielsen, M. D., Ozolins, V., and Heremans, J. P. “Lone Pair Electrons Minimize Lattice Thermal Conductivity,” *Energy Environ. Sci.* **6**, 570 – 578 (2013) (*IF* = 29.518).
- Jaworski, C. M., Yang, J., Mack, S., Awschalom, D. D., Heremans, J. P., and Myers, R. C., “Observation of the Spin-Seebeck Effect in a Ferromagnetic Semiconductor,” *Nature Materials* **9** 898-903 (2010) (*IF* = 39.737).
- Heremans, J. P., Jovovic, V., Toberer, E. S., Saramat, A., Kurosaki, K., Charoenphakdee, A., Yamanaka, S., and Snyder, G. J., “Enhancement of Thermoelectric Efficiency in PbTe by Distortion of the Electronic Density of States,” *Science* **321** 554 -558 (2008) (*IF* = 37.205).
- Partin, D. L., and Heremans, J. P., “Growth of Narrow Bandgap Semiconductors,” *Handbook on Semiconductors, Volume 3*, (Moss, T. S., Ed.; Mahajan, S., Ed.) pp. 369-450, Elsevier, 1994.

3 books (co-editor):

- *Karl W. Böer Survey of Semiconductor Physics*, Wiley-Interscience (2002).
- *Growth, Characterization and Properties of Ultrathin Magnetic Films and Multilayers*, Materials Research Society (1989).
- National Academies of Sciences, Engineering, and Medicine. 2019. *Frontiers of Materials Research: A Decadal Survey*, The National Academies Press, Washington, DC. <https://dx.doi.org/10.17226/25244>

39 US Patents issued: two portfolios (tunable IR diode lasers, crankshaft position sensors) have been in commercial production

Honors and Activities

- Member, National Academy of Engineering (2013).
- Fellow, American Association for the Advancement of Science AAAS (2011).
- Fellow, American Physical Society (1987).
- Guest Professor, Zhejiang University (2010-present).
- Elected chair, Forum for Industrial and Applied Physics, American Physical Society, 2008; member of the executive committee as vice-chair in 2006, chair-elect in 2007, past-chair in 2009.
- Member: American Physical Society, Committee for Applications of Physics (1992-5); American Association for the Advancement of Science; Materials Research Society.
- OSU: Recipient, Clara M. and Peter L. Scott Award for Excellence in Engineering Education (2014).
- Industry: General Motors Corporation: John M. Campbell Award (1989), Charles L. McCuen Award (1994), Charles F. Kettering Award (1995); Delphi Automotive Systems, Inventors Hall of Fame (1999); Gold Level (2004), Scientific Excellence Award (2003).

Research interests

Experimental investigation of electron, phonon and spin transport properties, semiconductor, semimetals, topological and magnetic materials and nanostructures. Contributions:

- Goniopolar materials exhibit simultaneous n- and p-type behavior by the same charge carriers (2019)
- Phonons in diamagnets respond to magnetic fields (2015)
- The giant spin-Seebeck effect in InSb is as large as the largest thermopower values measured (2012).
- Resonant levels increase the thermoelectric figure of merit (2008).
- Large thermopowers in quantum wires due to size-quantization (2002-4)
- Geometrical magnetosebeck and magnetoresistance effects – the latter resulted in commercial position sensors used on crank and camshafts by GM (1990s).

Joseph P. Heremans

3

Scientists Advised:

PhD (graduated):

Vladimir Jovovic (Executive VP for research, Gentherm, a 1B\$/yr company), Michele Nielsen (Corning), Chris Jaworski, Yibin Gao (Didi, Beijing), Hyungyu Jin (Asst Prof. Postech), Arati Praksh (Management Consultant, McKinsley and Associates), Bin He (postdoc, Max Planck Institute Dresden), Sarah Watzman (Asst. Prof. U. Cincinnati), Mike Adams. (postdoc, Georgia Tech.).

PhD (candidates):

Yuanhua Zheng, Dung Vu, Brandi Wooten.

MS (graduated):

Suresh Joottu Thiagarajan, Eric Evola (National Instruments), Sunphil Kim (PhD at UIUC), Christine Orovets, Mark Verosky

MS (candidates):

Mark Verosky.

Postdocs:

Audrey Chamoire, Yun Zhang, Hyungyu Jin, Michele Nielsen, Steve Boona, Koen Vandaele, Bin He.

Visitors (macro-postdocs):

Yi Chen, Bartek Wiendlocha.

Undergrads

Katherine Whitehouse, Christine Orovets, Chao Xu(chemistry), Erin Wells, Luyang Wang, Jocelyn Jiao, Simon Bogason.

Committee Member:

PhD (graduated): Yaxian Wang (postdoc, Harvard), Lei Chen, Phillip Evans, Arpit Mittal, Leon Headings, Sushma Stantapuri, Benjamin Goldberg, Zihao Yang, Zakari Eckert, Brandon Giles.

PhD (candidates): Elan Weiss, Felipe Pacci-Evaristo, John Jamison.

MS: Benjamin Kellie, Sarvani Piratla, Sayed Ali.

Graduate Faculty Representative:

Izolda Wolski-Moskoff (2019), Arly Drake (2018), Elena Chung (2016), Jaleh Sharif (2015), Jo Marie Bacusmo (2014), William Moulder (2012), Fu-Chen Yu (2011), Katherine Becker (2009), Derek Lincoln (2007).

Archival Journal Publications (including review articles and book chapters)

213. Michael J. Adams and Joseph P. Heremans, "Thermoelectric Q1 composite with enhanced figure of merit via interfacial doping", *Functional Composite Materials* (2020, in print) <https://doi.org/10.1186/s42252-020-00004-y>
212. Wang, Yaxian; Koster, Karl; Ochs, Andrew; Scudder, Michael; Heremans, Joseph; Windl, Wolfgang; Goldberger, Joshua, "The Chemical Design Principles for Axis-dependent Conduction Polarity", *Journal of the American Chemical Society* **142**(6):2812-2822 (2020) <https://doi.org/10.1021/jacs.9b10626> (IF=14.695)
211. Matthias Schrade, Kristian Berland, Andrey Kosinskiy, Joseph P. Heremans, Terje G. Finstad, Shallow Impurity Band in ZrNiSn", *J. Appl. Physics* **127** 045103 (2020) (IF=2.328)
210. Y. Zheng, T. Lu, Md M. H. Polash, M. Rasoulianboroujeni, N. Liu, M. E. Manley, Y. Deng, P. J. Sun, X. L. Chen, R. P. Hermann, D. Vashaee, J. P. Heremans, and H. Zhao, "Paramagnon drag in high thermoelectric figure of merit Li-doped MnTe", *Science Advances*, eaat9461, (2019); DOI:10.1126/sciadv.aat9461 (IF=12.08)
209. Yuanhua Zheng, Elan J. Weiss, Nikolas Antolin, Wolfgang Windl, and Joseph P. Heremans, "Magnon drag effect in Fe-Co alloys", *J. Appl. Phys.* **126**, 125107 (2019); <https://doi.org/10.1063/1.5117165> (IF=2.328)
208. Stephen R. Boona, Brandi Wooten, Koen Vandaele and Joseph P. Heremans, "Co-evolution of Microstructure and Magnetic Properties in Magnetically Aligned MnBi-Bi Composites", *Microsc. Microanal.* **25** (Suppl 2), 1710-1711 (2019) doi:10.1017/S1431927619009280
207. Adams, M. J., Verosky, M., Zebarjadi, M., and Heremans, J. P., "Active Peltier Coolers based on Correlated and Magnon-drag Metals," *Phys. Rev. Appl.* **11**, 054008 (2019) (IF=4.782).
206. He, B., Wang, Y., Arguilla, M. Q., Cultrara, N. D., Scudder, M. R., Goldberger, J. E., Windl, W., and Heremans, J. P., "The Fermi Surface Geometrical Origin of Axis-Dependent Conduction Polarity in Layered Materials," *Nature Materials* **18** 568-572 (2019) (<https://doi.org/10.1038/s41563-019-0309-4>) (IF=39.737).
205. Adams, M. J., Verosky, M., Zebarjadi, M., and Heremans, J. P., "High Switching Ratio Variable-temperature Solid-state Thermal Switch Based on Thermoelectric Effects," *Int. J. Heat Mass Transf.* **134**, 114-118 (2019) (<https://doi.org/10.1016/j.ijheatmasstransfer.2018.12.154>) (IF=3.891).
204. Sola, A., Basso, V., Kuepferling, M., Pasquale, M., Carsten née Meier, D., Reiss, G., Kuschel, T., Kikkawa, T., Uchida, K., Saitoh, E., Jin, H., Watzman, S. J., Boona, S. R., Heremans, J. P., Jungleich, M. B., Zhang, W., Pearson, J. E., Hoffmann, A., and Schumacher, H. W., "Spincaloritronic Measurements: A Round Robin Comparison of the Longitudinal Spin Seebeck Effect," *IEEE Trans. Instrum. Meas.* **68** 1765-1773 (2019) (<https://dx.doi.org/10.1109/TIM.2018.2882930>) (IF=2.794).
203. Jin, H. and Heremans, J. P., "Optimization of the Figure of Merit in Bi_{1-x}Sb_x/Al₂O₃ Nanocomposites," *Phys. Rev. Mater.* **2**, 115401 (2018) (<https://doi.org/10.1103/PhysRevMaterials.2.115401>).
202. Vandaele, K., Otsuka, M., Hasegawa, Y., and Heremans, J. P., "Confinement Effects, Surface Effects, and Transport in Bi and Bi_{1-x}Sb_x Semiconducting and Semimetallic Nanowires," *J. Phys.: Condens. Matter* **30** 403001 (2018) (<https://doi.org/10.1088/1361-648X/aada9b>) (IF=2.617).
201. Beens, M., Heremans, J. P., Tserkovnyak, Y., and Duine, R., "Magnons Versus Electrons in Thermal Spin Transport through Metallic Interfaces", *J. Phys. D: Appl. Phys.* **51** 394002 (2018) (<https://doi.org/10.1088/1361-6463/aad520>) (IF=2.373).
200. McCormick, T. M., Watzman, S. J., Heremans, J. P., and Trivedi, N., "Fermi Arc Mediated Entropy Transport in Topological Semimetals," *Phys. Rev. B* **97**, 195152 (2018) (<http://dx.doi.org/10.1103/PhysRevB.97.195152>) (IF = 3.718).
199. Watzman, S. J., McCormick, T. M., Shekhar, C., Wu, S.-C., Sun, Y., Prakash, A., Felser, C., Trivedi, N., and Heremans, J. P., "Dirac Dispersion Generates Unusually Large Nernst Effect in Weyl Semimetals," *Phys. Rev. B* **97**, 161404(R) (2018) (<http://dx.doi.org/10.1103/PhysRevB.97.161404>) (IF = 3.718).
198. Zhang, Y., Neal, A., Xia, Z., Joishi, C., Johnson, J. M., Zheng, Y., Bajaj, S., Brenner, M., Dorsey, D., Chabak, K., Jessen, G., Hwang, J., Mou, S., Heremans, J. P., and Rajan, S., "Demonstration of High Mobility and Quantum Transport in Modulation-doped β -(Al_xGa_{1-x})₂O₃/Ga₂O₃ Heterostructures," *Appl. Phys. Lett.* **112**, 173502 (2018) (<http://dx.doi.org/10.1063/1.5025704>) (IF = 3.411).
197. Vandaele, K., He, B., Van Der Voort, P., De Buysser, K., and Heremans, J. P., Wet-Chemical Synthesis of Enhanced-Thermopower Bi_{1-x}Sb_x Nanowire Composites for Solid-State Active Cooling of Electronics, *Phys. Rev. Applied* **9**, 024020 (2018) (<http://dx.doi.org/10.1103/PhysRevApplied.9.024020>) (IF = 4.808).
196. Prakash, A., Flebus, B., Brangham, J., Yang, F., Tserkovnyak, Y., and Heremans, J. P., "Evidence for the Role of the Magnon Energy Relaxation Length in the Spin Seebeck Effect," *Phys. Rev. B* **97**, 020408(R) (2018) (<http://dx.doi.org/10.1103/PhysRevB.97.020408>) (IF = 3.718).

195. Yang, Z., Codecido, E. A., Marquez, J. Zheng, Y., Heremans, J.P., Myers, R. C., “Scalable Nernst Thermoelectric Power Using a Coiled Galfenol Wire,” *AIP Advances* **7**, 095017 (2017) (<http://dx.doi.org/10.1063/1.5003611>) (IF = 1.568).
194. Vandaele, K., Heremans, J. P., Van Driessche, I., Van Der Voort, P., and De Buysser, K., “Continuous-feed nanocasting process for the synthesis of bismuth nanowire composites”, *Chem. Commun.* **53**, 12294-12297 (2017) (<http://dx.doi.org/10.1039/C7CC04499B>) (IF = 6.567).
193. Heremans, J. P., “A New Member of the Hall Family,” *Nature Materials* **16**, 968-9 (2017) (<http://dx.doi.org/10.1038/nmat5002>) (IF = 39.737).
192. Stockert, U., Dos Reis, R., Ajesh, M. O., Watzman, S., Schmidt, M., Shekhar, C., Heremans, J. P., Felser, C., Baenitz, M., Nicklas, M., “Thermopower and Thermal Conductivity in the Weyl Semimetal NbP,” *J. Phys. Cond. Matter* **29**, 325701 (2017) (<http://dx.doi.org/10.1088/1361-648X/aa7a3b>) (IF = 2.649).
191. Vandaele, K., Watzman, S. J., Flebus, B., Prakash, A., Zheng, Y., Boona, S. R., and Heremans, J. P., “Thermal Spin Transport and Energy Conversion,” *Mater. Today Phys.* **1** 39-49 (2017) (<http://dx.doi.org/10.1016/j.mtphys.2017.05.003>) (IF = 2.649).
190. Heremans, J. P., Cava, R. J., and Samarth, N., “Tetradymites as Thermoelectrics and Topological Insulators,” *Nature Reviews Materials* **2** 17049 (2017) (<http://dx.doi.org/10.1038/natrevmats.2017.49>) [cover] (IF=74.449)
189. Wiendlocha, B., Kim, S. P., Lee, Y., He, B., Lehr, G., Kanatzidis, M. G., Morelli, D. T., and Heremans, J. P., “Eu²⁺ – Eu³⁺ Valence Transition in double, Eu-, and Na-doped PbSe from Transport, Magnetic, and Electronic Structure Studies,” *Phys. Chem. Chem. Phys.* (2017) (<http://dx.doi.org/10.1039/c7cp00358g>) (IF = 4.123).
188. Hellman, F., Hoffman, A., Tserkovnyak, Y., Beach, G., Fullerton, E., Leighton, C., MacDonald, A., Ralph, D., Arena, D., Durr, H., Fischer, P., Grollier, J., Heremans, J., Jungwirth, T., Kimel, A., Koopmans, B., Krivorotov, I., May, S., Petford-Long, A., Rondinelli, J., Samarth, N., Schuller, I., Slavin, A., Stiles, M., Tchernyshyov, O., Thiaville, A., and Zink, B., “Interface-Induced Phenomena in Magnetism,” *Rev. Mod. Phys.* **89**, 025006 (2017) (<http://dx.doi.org/10.1103/RevModPhys.89.025006>) (IF = 33.177).
187. Zhu, T., Liu, Y., Fu, C., Heremans, J. P., Snyder, G. J., and Zhao, X., “Compromise and Synergy in High-Efficiency Thermoelectric Materials”, *Adv. Mater.* **29**, 1605884 (2017) (<http://dx.doi.org/10.1002/adma.201605884>) (IF = 19.791).
186. Boona, S. R., Vandaele, K., Boona, I. N., McComb, D. W., and Heremans, J. P., “Observation of Spin Seebeck Contribution to the Transverse Thermopower in Ni-PT and MnBi-Au Bulk Nanocomposites,” *Nat. Comm.* **7**, 13714 (2016) (<http://dx.doi.org/10.1038/ncomms13714>) (IF = 12.124).
185. Heremans, J.P. and Wiendlocha, B., “The Tetradymites: Bi₂Te₃ Related Materials,” in *Materials Aspect of Thermoelectricity* (C. Uher, Ed.), CRC Press, Taylor and Francis, Boca Raton, FL (2016).
184. Watzman, S. J., Duine, R. A., Tserkovnyak, Y., Boona, S. R., Jin, H., Prakash, A., Zheng, Y., and Heremans, J. P., “Magnon-drag Thermopower and Nernst Coefficient in Fe, Co, and Ni”, *Phys. Rev. B* **94**, 144407 (2016) (<http://dx.doi.org/10.1103/PhysRevB.94.144407>) (IF = 3.718).
183. Coloyan, G., Cultrara, N. D., Katre, A., Carrete, J., Heine, M., Ou, E., Kim, J., Jiang, S., Lindsay, L., Mingo, N., Broido, D., Heremans, J. P., Goldberger, J., and Shi, L., “Basal-plane Thermal Conductivity of Nanocrystalline and Amorphized Thin Germanane,” *Appl. Phys. Lett.* **109**, 131907 (2016) (<http://dx.doi.org/10.1063/1.4963704>) (IF = 3.411).
182. Prakash, A., Brangham, J., Yang, F., and Heremans, J. P., “Spin Seebeck effect through antiferromagnetic NiO,” *Phys. Rev. B* **94**, 014427 (2016) (<https://dx.doi.org/10.1103/PhysRevB.94.014427>) (IF = 3.718).
181. Boona, S. R., Watzman, S. J., and Heremans, J. P., “Research Update: Utilizing Magnetization Dynamics in Solid-State Thermal Energy Conversion,” *APL Materials* **4**, 104502 (2016) (<http://dx.doi.org/10.1063/1.4955027>) (IF = 4.335).
180. Li, Y., He, B., Heremans, J. P., and Zhao J. C., “High-temperature oxidation behavior of thermoelectric SnSe”, *J. Alloys Compds* **669**, 224-231 (2016) (<http://dx.doi.org/10.1016/j.jallcom.2016.01.258>) (IF = 3.133).
179. Heremans, J. P., “Solid State Heat Convertors,” *Encyclopedia of Nanotechnology*, 2nd Ed., (Bhushan, B., ed.), Springer Science+Business Media B.V. (2016).
178. Jin, H., Restrepo, O. D., Antolin, N., Boona, S. R., Windl, W., Myers, R. C., and Heremans, J. P., “The Phonon-induced Diamagnetic Force and its Effect on the Lattice Thermal Conductivity,” *Nat. Mater.* **14**, 601-606 (2015) (<http://dx.doi.org/10.1038/nmat4247>) (IF = 39.737).
177. Heremans, J. P., “The Anharmonicity Blacksmith,” *Nat. Phys.* **11**, 990-991 (2015) (<http://dx.doi.org/10.1038/nphys3542>) (IF = 22.806).

176. Yang, Z, Kent, T. F., Yang, J., Jin, H., Heremans, J. P., and Myers, R. C., “Anisotropic Defect-induced Ferromagnetism and Transport in Gd-doped GaN Two-dimensional Electron Gasses,” *Phys. Rev. B* **92**, 224416 (2015) (<http://dx.doi.org/10.1103/PhysRevB.92.224416>) (*IF* = 3.718).
175. Jin, H., Boona, S. R., Yang, Z., Myers, R. C., and Heremans, J. P., “Effect of the Magnon Dispersion on the Longitudinal Spin Seebeck Effect in Yttrium Iron Garnets,” *Phys. Rev. B* **92**, 054436 (2015) (<http://dx.doi.org/10.1103/PhysRevB.92.054436>) (*IF* = 3.718).
174. Jin, H., Wiendlocha, B., and Heremans, J. P., “P-type Doping of Elemental Bismuth with Indium, Gallium, and Tin: A Novel Doping Mechanism in Solids,” *Energy Environ. Sci.*, **8**, 2027-2040 (2015) (<http://dx.doi.org/10.1039/C5EE01309G>) (*IF* = 29.518).
173. Boona, S. R. and Heremans, J. P., Comment on “Thermal Properties of Magnons in Yttrium Iron Garnet at Elevated Magnetic Fields”, *Phys. Rev. B* **91** 226401 (2015) (<http://dx.doi.org/10.1103/PhysRevB.91.226401>) (*IF* = 3.718).
172. Nielsen, M. D., Jaworski, C. M., and Heremans, J. P., “Off-stoichiometric Silver Antimony Telluride: An Experimental Study of Transport Properties with Intrinsic and Extrinsic Doping,” *AIP Advances* **5**, 053602 (2015) (<http://dx.doi.org/10.1063/1.4916217>) (*IF* = 1.568).
171. Chen, Y., Jaworski, C. M., Gao, Y. B., Wang, H., Zhu, T. J., Snyder, G. J., Heremans, J. P., and Zhao, X. B., “Transport Properties and Valence Band Feature of High-performance $(\text{GeTe})_{85}(\text{AgSbTe}_2)_{15}$ Thermoelectric Materials,” *New J. Phys.* **16**, 013057 (2014) (<http://dx.doi.org/10.1088/1367-2630/16/1/013057>) (*IF* = 3.786).
170. Lehr, G. J., Morelli, D. T., Jin, H., and Heremans, J. P., “ YbCu_2Si_2 – LaCu_2Si_2 Solid Solutions with Enhanced Thermoelectric Power Factors,” *Journal of Electronic Materials* **44**, 1663-1667 (2014) (<http://dx.doi.org/10.1007/s11664-014-3509-3>) (*IF* = 1.579).
169. Gao, Y. B., He, B., Parker, D., Androulakis, I., and Heremans, J. P., “Experimental Study of the Valence Band of Bi_2Se_3 ,” *Phys. Rev. B* **90**, 125204 (2014) (<http://dx.doi.org/10.1103/PhysRevB.90.125204>) (*IF* = 3.718).
168. Kim, S., Wiendlocha, B., Jin, H., Tobola, J., and Heremans, J. P., “Electronic Structure and Thermoelectric Properties of p-type Ag-doped Mg_2Sn and $\text{Mg}_2\text{Sn}_{1-x}\text{Six}$ ($x = 0.05, 0.1$),” *J. Appl. Phys.* **116**, 153706 (2014) (<http://dx.doi.org/10.1063/1.4898013>) (*IF* = 2.068).
167. Boona, S. R. and Heremans, J. P., “Magnon Thermal Mean Free Path in Yttrium Iron Garnets,” *Phys. Rev. B* **90**, 064421 (2014) (<http://dx.doi.org/10.1103/PhysRevB.90.064421>) (*IF* = 3.718).
166. Heremans, J. P., “Thermoelectricity: The Ugly Duckling,” *Nature* **508**, 327-328 (2014) (*IF* = 40.137).
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36. "Thermoelectric materials comprising nanoscale inclusions to enhance Seebeck coefficient," Heremans, J. P., Thrush, C. M., and Morelli, D. T., U.S. Patent Number 7,365,265; April 29, 2008.
35. "Thermally conditioned vehicle seat," Kadle, P. S., Wolfe, IV, E., Heremans, J. P., and Morelli, D. T., U.S. Patent Number 7,238,101; July 3, 2007.
34. "Magnetic array position sensor," Schroeder, T., Guerra, J. A., Heremans, J. P., and Partin, D. L., U.S. Patent Number 7,221,151; May 22, 2007.
33. "Sensor assembly combining signals with enhanced asymmetry for detecting direction of rotation of an object," Heremans, J. P., Lequesne, B. P. B., Schroeder, T., and Omekanda, A. M., U.S. Patent Number 7,009,384; March 7, 2006.
32. "Controlled Electron Mobility Galvanomagnetic Devices," Heremans, J. P., Partin, D. L., and Schroeder, T. S., U.S. Patent Number 6,985,066; January 10, 2006.
31. "Diesel engine lubricating oil contaminant sensor method," Heremans, J. P., Wang, S-C. S., Schroeder, T., and Nagy, L. L., U.S. Patent Number 06911830B2; June 28, 2005.
30. "Integrating fluxgate for magnetostrictive torque sensors," Heremans, J.P., Naidu, M., Nehl, T. W., Smith, J. R., and Fuller, B. K., U.S. Patent Number 06871553; March 29, 2005.
29. "Method for measuring high frequency resistance in diesel engine lubrication oil." Heremans, J. P., Nicholson, W. B., Lin, Y., and Oberdier, L. M., U.S. Patent Number 6,867,603; March 15, 2005.
28. "Method for determining engine lubricating oil condition," Heremans, J. P. and Wang, S-C. S., U.S. Patent Number 6,810,717; November 2, 2004.
27. "Enhanced thermoelectric power in bismuth nanocomposites," Heremans, J. P., Thrush, C. M., and Morelli, D. T., U.S. Patent Number 6,670,539; December 30, 2003.
26. "Composite Magnetic Sensor," Heremans, J. P., Partin, D. L., and Schroeder, T. S., U.S. Patent Number 6,630,882; October 7, 2003.
25. "Temperature compensated voltage divider with a magnetoresistor and a reference resistor," Heremans, J. P., Partin, D. L., and Schroeder, T. S., U.S. Patent Number 6,512,369 B2; January 28, 2003.
24. "Adaptive driver circuit for semiconductor magnetoresistors," Heremans, J. P. and Schroeder, T., U.S. Patent Number 6,208,176; March 27, 2001.
23. "Process to prepare an array of wires with submicron diameter," Heremans, J. P. and Thrush, C. M., U.S. Patent Number 6,159,831; December 12, 2000.
22. "In-plane Magnetoresistance Bridge," Heremans, J. P. and Yang, J., U.S. Patent Number 6,075,437; June 13, 2000.
21. "Magnetic field sensor on elemental semiconductor substrate with electric field reduction means," Heremans, J. P., Partin, D. L., and Green, L., U.S. Patent Number 5,491,461; February 13, 1996.
20. "Solid State Conversion of Hexagonal to Cubic-like Boron Nitride," Heremans, J. P. and Doll, G. L., U.S. Patent Number 5,398,639; May 21, 1995.
19. "Rare Earth Slab Doping of Group III-V Compounds," Heremans, J. P., Partin, D. L., and Thrush, C. M., U.S. Patent Number 5,314,547; May 24, 1994.
18. "Method of Fabricating a Transistor having a Cubic Boron Nitride Layer," Heremans, J. P., Doll, G. L., and Sell, J. A., U.S. Patent Number 5,232,862, August 3, 1993.
17. "Magnetic Field Sensor with Improved Electron Mobility," Heremans, J. P. and Partin, D. L., U.S. Patent Number 5,184,106; Feb. 2, 1993.
16. "Hall generator with four arms," Heremans, J. P., U.S. Patent Number 5,173,758; Dec. 22, 1992.
15. "Transistor having a Cubic Boron Nitride Layer," Heremans, J. P., Doll, G. L., and Sell, J. A., U.S. Patent Number 5,142,350; Nov. 24, 1992.
14. "Magnetic Field Sensor Contacts," Heremans, J. P. and Partin, D. L., U.S. Patent Number 5,153,557; Nov. 24, 1992.
13. "Method of making Indium Arsenide Magnetoresistor," Heremans, J. P. and Partin, D. L., U.S. Patent Number 5,117,543; Jun. 2, 1992.
12. "Method for forming a transistor having cubic boron nitride layer," Heremans, J. P., Sell, J. A., and Doll, G. L., U.S. Patent Number 5,081,053; Jan. 14, 1992.

11. "Method of making a permanent magnet sensor element with a soft magnetic layer," Heremans, J. P., Bradley, J. R., and Schroeder, T., U.S. Patent Number 5,074,929; Dec. 24, 1991.
10. "Magnetoresistor," Heremans, J. P. and Olk, C. H., U.S. Patent Number 5,038,131; Aug. 6, 1991.
9. "Magnetoresistor, Heremans, J. P., Partin, D. L., and Morelli, D. T., U.S. Patent Number 4,978,938; Dec. 18, 1990.
8. "Position sensor including a thin film indium arsenide magnetoresistor on a permanent magnet," Heremans, J. P., Morelli, D. T., Partin, D. L., Thrush, C. M., and Green, L., U.S. Patent Number 4,939,456; Jul 3, 1990.
7. "Magnetic field sensors," Heremans, J. P. and Partin, D. L., U.S. Patent Number 4,926,226; May 15, 1990.
6. "Indium Arsenide Magnetoresistor," Heremans, J. P. and Partin, D. L., U.S. Patent Number 4,926,154, May 15, 1990.
5. "Process for Forming a Magnetic Field Sensor," Heremans, J. P. and Partin, D. L., U.S. Patent Number 4,900,687; Feb 18, 1990.
4. "Hot Electron Transistors," Heremans, J. P. and Partin, D. L., U.S. Patent Number 4,847,666; Jul 11, 1989.
3. "Magnetic field sensor," Heremans, J. P. and Partin, D. L., U.S. Patent Number 4,843,444; Jun 27, 1989.
2. "Thermocouple Flow Sensors," Heremans, J. P. and Harrington, C., U.S. Patent Number 4,782,708; Nov 8, 1988.
1. "Lead-Europium-Selenide-Telluride Diode Laser," Heremans, J. P. and Partin, D. L., U.S. Patent Number 4,747,108; May 24, 1988.

Plenary and Invited talks

82. "XXXX," Invited Talk, Kavli Institute for Theoretical Physics, University of California, Santa Barbara, November 18-22, 2019.
81. "Transport in Goniopolar and (pxn) Metals," Invited Talk, AVS 66th International Symposium & Exhibition, Columbus, OH, October 20, 2019.
80. "Prospects for Boson-based energy converters", Plenary talk, ICT2019 - 38th International Conference on Thermoelectrics, Gyeongju, South Korea, July 1, 2019
79. "Thermal transport in the field-induced Weyl semimetal Bi₈₉Sb₁₁ ", Dung Vu, Wenjuan Zhang, Cüneyt Şahin, Nandini Trivedi, Michael Flatté, Joseph P. Heremans, SpinTech X, Chicago, IL, 26 June 2019
78. "Spin-Seebeck effect in the organic ferromagnet VTCNE vanadium tetracyanoethylene", Yuanhua Zheng Ezekiel Johnston-Halperin, Seth Kurfman, Andrew Franson, Audrey Chamoire, Spin Caloritronics X , May 20, 2019, Groningen, NL
77. "Thermal conductivity of Weyl semimetals", Dung Vu, Wenjuan Zhang, Cüneyt Şahin, Nandini Trivedi, Michael Flatté, Joseph P. Heremans, Spring MRS meeting Invited Talk QN05.08.01, April 24, 2019, Phoenix, AZ
76. "Paramagnon Drag as a Route to High ZT", Y. Zheng, M. Rasoulianboroujeni, T. Lu, M. H. Polash, N. Liu3, R. P. Hermann, M. E. Manley, D. Vashaee, Huaizhou Zhao, April 23 2019 Spring MRS session Invited talk EP13-03-01, Phoenix, AZ,
75. "Thermal spin transport", Workshop on Frontiers in Thermal Transport and Energy Conversion, National Academy of Sciences Condensed Matter and Materials Research Committee April 11, 2019 Meeting
74. "Conveyor-belt Entropy Transport in a Weyl Semimetal," J. P. Heremans, D. Vu, N. Trivedi, W. Zhang, M. Flatté, C. Şahin, Spin Mechanics 6, Sendai, Japan, February 27, 2019.
73. "Nernst Thermopower in Bi-MnBi Composites," J. P. Heremans, K. Vandaele, B. He, S. Boona, Materials Research Society Fall Meeting, Boston, MA, November 28, 2018.
72. "Principles of Spin-based Solid-state Heat-to-Electricity Conversion," Daniel C. Tsui Lecture, Physics Series, Institute of Physics, Chinese Academy of Sciences, Beijing, China, October 8, 2018.
71. "High ZT in MnTe via Spin Physics," J. P. Heremans, Y. Zheng, H. Zhao, T. Lu, N. Liu, P.J. Sun, W. Wang, M. Rasoulianboroujeni, D. Vashaee, International Conference on Thermoelectrics, Caen, France, July 1, 2018.
70. "Spin-enhanced Thermopower and Nernst Effects in Metals and Semiconductors," Y. Zheng, B. He, M. Adams, S. J. Watzman, K. Vandaele, B. Flebus, W. Windl, R. Duine, Y. Tserkovnyak, D. Vashaee, and J. P. Heremans (given by Heremans), Spin Caloritronics IX, Columbus, OH, June 26, 2018.

69. "Professor Dresselhaus' Contribution to Thermoelectrics Research," MRS Fall meeting, Boston, MA, November 27, 2017.
68. "Professor Dresselhaus' Contribution to Thermoelectrics Research" Celebrating Our Millie: The Legacy and Impact of Mildred Dresselhaus Symposium, MRS Fall Meeting, Boston, MA, November 26, 2017.
67. "Entropy Transport in Weyl Semimetals," J. P. Heremans, S. J. Watzman, T. M. McCormick, C. Shekhar, S.-C. Wu, Y. Sun, C. Felser, and N. Trivedi (given by Heremans), Antiferromagnetic Spintronics, Grenoble, France, October 25-27, 2017.
66. "Signatures of Dirac and Weyl Physics in Thermal Transport Properties," J. P. Heremans, S. J. Watzman, T. M. McCormick, N. Trivedi, K. Manna, C. Shekhar, and C. Felser (given by Heremans), Spin, Charge, and Energy Transport in Novel Materials, Hvar, Croatia, October 1-8, 2017.
65. "Entropy Transport in Weyl Semimetals with Topologically Protected Charge Carriers," 9th US-Japan Joint Seminar on Nanoscale Transport Phenomena, Tokyo, Japan, July 3, 2017.
64. "Thermal Transport in Weyl Semimetals," Spin Caloritronics 8, Regensburg, Germany, June 15, 2017.
63. "Dirac Dispersion Generates Large Nernst Effect in Weyl Semimetals," S. J. Watzman, T. M. McCormick, C. Shekhar, S.-C. Wu, Y. Sun, A. Prakash, C. Felser, N. Trivedi, and J. P. Heremans (given by Heremans), Workshop on Spins, Valleys, and Topological States in 2D and Layered Materials, Columbus, OH, June 7, 2017.
62. "Magnon Drag, Induced and Direct," Spin Coherence, Condensation, and Superfluidity, University of California Gump Station, Moorea, French Polynesia, February 16, 2017
61. "Magnon Mediated Phonon Drag in YIG/Metal Systems," (given by Prakash) Spin Coherence, Condensation, and Superfluidity, University of California Gump Station, Moorea, French Polynesia, February 16, 2017.
60. "Spin in Thermoelectrics: From Spin-Seebeck to Magnon Drag," Tutorial, Spin Caloritronics 7, Utrecht, Netherlands, July 12, 2016.
59. "Thermoelectrics Research in the Thermal Materials Laboratory," (invited, given by Watzman) International Thermoelectrics Summer School, Golden, CO, July 2016.
58. "Introduction to Cryogenic Solid State Cooling," SPIE Defense + Cooling, Baltimore, MD, April 20, 2016.
57. "BiSb and Spin-related Thermoelectric Phenomena," SPIE Defense + Cooling, Baltimore, MD, April 20, 2016.
56. "Thermoelectric and Spin-Caloritronic Coolers: From Basics to Recent Developments," SPIE Photonics West Conference, San Francisco, CA, February 17, 2016.
55. "Magnetic Field Dependence of Phonon Heat Transport," Materials Research Society Fall Meeting, Boston, MA, November 30, 2015.
54. "Thermoelectric and Spin-Thermal Solid-State Energy Conversion," Exploration of Novel Complex Materials Fall Seminar Series, The Ohio State University, Columbus, OH, October 7, 2015.
53. "Using the Spin Degree of Freedom in Solid State Thermal Energy Conversion," Spin Thermal Workshop, The Ohio State University, Columbus, OH, September 16, 2015.
52. "The effect of the Spin Degree of Freedom on Solid State Heat-to-Electricity Converters," American Chemical Society, Summer Meeting, Boston, MA, August 15, 2015.
51. "Adding the Spin Degree of Freedom to Thermoelectrics," International Thermoelectrics Conference, Dresden, Germany, June 29, 2015.
50. "Temperature Dependence of Magnon Thermal Conductivity, Spin-Seebeck Effect, and Magnon Drag," SpinMechanics 3 Workshop, Munich, Germany, June 25, 2015.
49. "Thermoelectric and Spin Thermal Solid State Energy Conversion," Institute for Materials Research Materials Week, Columbus, OH, May 14, 2015.
48. "Thermally Induced Spin Fluxes," Department of Energy Static and Dynamic Interfacial Effects in Magnetism Workshop, Washington, D.C., April 14, 2015.
47. "Solid State Thermal-to-Electrical Energy Conversion: Progress in Thermoelectricity and Spin Caloritronics," Advanced Institute for Materials Research International Symposium 2015, Tohoku University, Sendai, Japan, February 18, 2015.
46. "Magnetic Properties of Phonons," Spin Caloritronics VI Conference, Irsee, Germany, July 2014.
45. "Phonon Diamagnetism," International Conference on Thermoelectrics, Nashville, TN, July 7, 2014.
44. "Thermal Properties of Magnons and Magnetic Properties of Phonons," Spin Mechanics, Sendai, Japan, June 2014.

43. "Heat Transport by Magnons, Phonon-drag, and the Spin Seebeck Effect," Kavli Institute for Theoretical Physics, Concepts in Spintronics Conference, Santa Barbara, CA, September 30-October 5, 2013
42. "Thermoelectric and Spin Caloritronics Solid-state Energy Conversion," Plenary opening lecture, TEP-CH 2013 Synthesis and function of Thermoelectric Materials Conference, EMPA (Swiss Federal Laboratories for Materials Science and Technology), Überlandstrasse 129, 8600 Dübendorf, Switzerland, Sept. 16-19 2013.
41. "The Spin Seebeck Effect and Thermomagnetic Signals in Bulk Metglass," Donostia International Conference on Nanoscaled Magnetism and Applications, San Sebastian, Spain, 9-13th September 2013.
40. "The Role of Phonons in the Spin Seebeck Effect," SPIE Optics and Photonics, Spintronics Symposium VI, San Diego, CA, August 25-29, 2013.
39. "Giant Spin Seebeck Effect and Phonon Drag in InSb," Gordon Research Conference, Spin Dynamics in Nanostructures, Hong Kong, China, August 18-21, 2013.
38. "The Spin Seebeck Effect: An Experimentalist's Point of View," SpinTech VI, Chicago, IL, July 28-31, 2013.
37. "Anharmonicity Engineering: Reducing the Lattice Thermal Conductivity," DOE-EFRC Principal Investigators' Meeting, Washington DC, July 18-19, 2013.
36. "Resonant Levels in Bulk Semiconductors," E-MRS (Materials Research Society), Strasbourg, France, May 26-30, 2013.
35. Spin Caloritronics V International Workshop, The Ohio State University, Columbus, Ohio, May 12-15, 2013.
34. "Spin Seebeck Effect and Magnon Thermal Conductivity," Spin Caloritronic Transport, Deutsche Forschungsgemeinschaft SPP 1538 meeting, Bad Honnef, Germany, April 21-23, 2013.
33. "Thermoelectric and Spin-thermal Solid-State Energy Conversion," Fifth Annual International Workshop on Advanced Materials (IWAM), Ras Al Khaimah, United Arab Emirates, February 24-27, 2013.
32. "The Spin Seebeck Effect in Semiconductors," WIND conference, Kona, Hawaii, December 2-7, 2012.
31. "Semiconductors for thermoelectric and spin-thermal solid-state energy conversion," Nobel Symposium 153: Nanoscale Energy Converters, Örenäs Castle, Sweden, August 12-16, 2012.
30. "The Spin-Seebeck Effect in Semiconductors: GaMnAs & InSb," Tutorial lecture, The 7th International Conference on Physics and Applications of Spin-related Phenomena in Semiconductors, Eindhoven, the Netherlands, August 5, 2012.
29. "Electron Transport," Lecture, Summer School on Thermoelectricity, Centre National de la Recherche Scientifique (CNRS), Ventron, France, July 3 and July 5, 2012.
28. "Giant Spin-Seebeck Effect in InSb under Quantizing Magnetic Fields," J.P. Heremans, C. M. Jaworski, E. Johnston-Halperin, and R.C. Myers, Invited talk, Spin Caloritronics Workshop –IV, Tohoku University, Sendai, Japan, June 3, 2012.
27. "Quantum Spin-Seebeck Effect," 2nd ASRC International Workshop on Magnetic Materials and Nanostructures, Japanese Atomic Energy Agency, Tokai, Japan, January 11, 2012.
26. "Resonant Levels in Thermoelectric Semiconductors," Keynote Presentation, 7th US-Japan Joint Workshop on Nanoscale Transport, Shima, Japan, December 16, 2011.
25. "Spin-Seebeck, Phonon-drag and Phonon Transport in GaMnAs," 56th Annual Conference on Magnetism and Magnetic Materials, Scottsdale, AZ, Oct 30 – Nov 3, 2011.
24. "Spin-Seebeck versus Charge-Seebeck: Perspective, Prospects and Problems," Opening Lecture, Spin Caloritronics III, Lorentz International Center for Workshops in Sciences, University of Leiden, Leiden, NL, May 9-13, 2011.
23. "Giant Seebeck Coefficient in Organic-based Magnetic Semiconductor V(TCNE)_x," Audrey Chamoire, Christopher Jaworski, Chi-Yueh Kao, Arthur Epstein, and Joseph Heremans, Invited talk, European Materials Research Society Meeting, Nice, France, May 9-13, 2011.
22. "The Spin-Seebeck Effect, and Experimentalist's Point of View," Materials Research Society Spring Meeting, San Francisco, CA, April 29, 2011.
21. "Resonant Levels and the Thermoelectric Figure of Merit," American Physical Society March Meeting, Dallas, TX, March 25, 2011.
20. "Optimization of the Efficiency of Thermoelectric Energy Converters," European Science Foundation Workshop on Nanotechnology for Sustainable Energy, M. Graetzel and J-M. Tarascon, Organizers, Obergurgl, Austria, July 7, 2010.
19. "Resonant Levels Increase the Thermoelectric Figure of Merit," The 29th International Conference on Thermoelectrics, Shanghai, China, May 31-June 3, 2010.

18. "The Spin Seebeck Effect in Semiconductors," Shanghai International Workshop on High Performance Ceramics, Hangzhou, China, May 27-30, 2010.
17. "Enhancing the Thermoelectric Figure of Merit in Bulk Semiconductors," Meeting of the American Vacuum Society, November 11, 2009.
16. "Resonant Impurity Levels can Enhance the Thermoelectric Figure of Merit," Invited talk N6.6, Materials Research Society Spring Meeting, San Francisco CA, April 13-17, 2009.
15. "Enhancement of the Thermoelectric Figure of Merit by Distortions of the Dispersion Relation," Invited talk (L28.00001), Meeting of the American Physical Society, Pittsburgh, PA, Bull. Am. Phys. Soc. **54**, L28.00001, March 16-23, 2009).
14. Invited talk, 26th International Conference on Thermoelectricity, Corvallis, Oregon, August 2-7, 2008.
13. "Nanoscale Thermoelectricity," XVI Ural International Winter School on the Physics of Semiconductors, Ekaterinburg, Russia, organized by the Russian Academy of Sciences, Feb. 27 - Mar. 4, 2006.
12. "Low-dimensional Thermoelectricity," XXXIV International School on the Physics of Semiconducting Compounds, Jaszowiec, Poland, June 4 - 10, 2005.
11. "Thermoelectric Power, Electrical Resistance, Magnetoresistance and Optical Reflectivity of Bismuth Nanowire composites," Fall meeting, Material Research Society, Boston, MA, December 1, 2003.
10. "Review of Thermoelectric and Galvanomagnetic Properties of Bismuth Nanowires," Invited Talk at the 22nd International Conference on Thermoelectrics, La Grande Motte, France, Aug. 17-21, 2003.
9. "Magnetic Field Sensors for Position Sensing in Automotive Applications," Invited talk, Spring meeting, Materials Research Society, San Francisco CA, April 1997.
8. "Magnetic Field Sensors for Position Sensing in Automotive Applications," Invited talk, 16th Annual Conference on Properties and Applications of Magnetic Materials, Chicago, IL, May 12-14, 1997.
7. "Solid-State Magnetic Field Sensors and Automotive Application," Invited talk, IV International Conference on Advanced Materials, Cancun, Mexico, August 1995.
6. "Electronic Properties of Carbon Nanotubes," Invited paper, Spring Meeting of the Materials Research Society, San Francisco, April, 1995.
5. "Narrow-gap Semiconductor Magnetic Field Sensors and Applications," Invited paper, International Conference on Narrow Gap Semiconductors, Southampton, UK, July 1992.
4. "Two-dimensional Electron Gas Magnetic Field Sensors," Invited paper, March meeting, American Physical Society, Anaheim Ca, Bull. Am. Phys. Soc. **35** 191, March 1990.
3. "Thermal Properties of High-Tc Materials," Invited paper, workshop on high temperature superconductivity, University of Alabama, May 23-25, 1989. Proceedings (PR-89-02) published by GACIAC, IITRI, 10 W. 35th street, Chicago, IL 60616.
2. "The Influence of Heat-treatment of Graphite Fibers on Their Intercalation with Sulfuric Acid," Invited paper, International Symposium on Graphite Intercalation Compounds, Tsukuba, Japan, March 1985.
1. "Transport Properties of Graphite Fibers: 2-D Behavior and Disorder," Invited paper, March Meeting, American Physical Society, Bull. Am. Phys. Soc. **30**, p. 588, March 1985.

Colloquia, lectures and seminars:

72. "Thermal Effects of Topologically Non-trivial Fermi Surfaces: Thermal Chiral Anomaly and Goniopolar Materials", Deptment of Materials Science, University of Maryland, College Park MD, October 11, 2019.
71. Four lectures at the International School of Physics "Enrico Fermi" - course 207, ADVANCES IN THERMOELECTRICITY: FOUNDATIONAL ISSUES, MATERIALS AND NANOTECHNOLOGY, Varenna (Lake Como) 15 - 20 July 2019. Titles: "Lecture 1: Thermodynamics of Magnetism"; "Lecture 2: Spin Transport"; "Lecture 3: Topological Materials"; and "Error bars in measurements"
70. "Spin Based Thermoelectrics", Pohang Institute of Technology, Pohang, South Korea, July 5, 2019
69. "The Thermal Chiral Anomaly in field-induced Weyl semimetals." Oak Ridge National Labs Colloquium May 14, 2019, Oak Ridge, TN
68. "Entropy Transport in Weyl Semimetals," Northwestern University, Evanston, IL, January 20, 2019.
67. "Solid-state Thermal-to-Electrical Energy Conversion" University of Minnesota, Minneapolis, MN, March 28, 2019.

66. "Principles of Solid-state Heat-to-Electricity Conversion Based on Spin," Y. Zheng, M. Rasoulianboroujeni, T. Lu, Md M. H. Polash, N. Liu, R. P. Hermann, M. E. Manley, H. Zhao, D. Vashaee, and J. P. Heremans (given by Heremans), Kavli Institute for Theoretical Sciences Workshop, Beijing, China, October 1, 2018.
65. "Solid-state Thermal-to-Electrical Energy Conversion" University of Houston, Houston, TX, February 9, 2018.
64. "Principles of Solid-State Heat-to-Electricity Conversion Based on Spin," University of California, Irvine, Irvine, CA, May 26, 2017.
63. "Principles of solid-state heat-to-electricity conversion based on spin," Graduate Seminar Series, Purdue University, West Lafayette, IN, November 17, 2016.
62. "Magnon-drag as a Pathway to High-efficiency Thermoelectric Metals, (invited, given by Watzman) Society of Women Engineers Graduate Rapid Fire Research Competition, Austin, TX, October 26, 2017.
61. "Berry Curvature-induced Huge Anomalous Nernst Effect in the Absence of Magnetic Field in the Time-reversal Symmetry-breaking Weyl Semimetal YbMnBi_2 ," (invited, given by Watzman) University of Dayton Academic Research Colloquium, Dayton, OH, October 11, 2017.
60. "Spin Caloritronics and Spin in Thermoelectrics," The Professor Ctirad Uher Symposium, Ann Arbor, MI, October 7, 2016.
59. "Thermoelectric and Spin-Thermal Solid-State Energy Conversion," Seminar, West Virginia University, Morgantown, WV, February 5, 2016.
58. "Thermoelectric and Spin-Thermal Solid-State Energy Conversion," Seminar, University of Southern California, Los Angeles, CA, January 14, 2016.
57. "Thermal Properties of Magnons and Magnetic Properties of Phonons," Colloquium, Texas A&M University, College Station, TX, November 19, 2015.
56. "The spin degree of freedom in thermoelectrics," Symposium, Zhejiang University, Hangzhou, China, October 28, 2015.
55. "The Spin Degree of Freedom in Thermoelectrics," Symposium, University of Houston, Houston, TX, September 10, 2015.
54. "The Spin Degree of Freedom in Thermoelectrics," Symposium, Laboratoire de Physique et d'Étude des Matériaux, Paris-Sorbonne University, Paris, France, June 18, 2015.
53. "Thermoelectric and Spin Thermal Solid State Energy Conversion," Symposium, California Institute of Technology, Pasadena, CA, April 17, 2015.
52. "Thermoelectric and Spin-Thermal Solid-State Energy Conversion," Boston College, Newton, MA, October 28, 2014.
51. "Solid-state Heat Engines and Waste Heat Recovery," Winton Symposium on the Physics of Sustainability, Cavendish Laboratory, University of Cambridge, Cambridge UK, September 29, 2014.
50. "Transport de Chaleur via les Spins," Ecole de Transport, CNRS, Annecy, France, May 2014.
49. "Thermal Properties of Magnons and Magnon-Phonon Interactions" Spin Caloritronics VI, Irsee Germany, July 2014.
48. "Thermal Properties of Magnons and Magnetic Properties of Phonons," Spin Mechanics, Sendai, Japan, June 2014.
47. "Transport Electronique," Ecole de Transport, CNRS, Annecy, France, May 2014.
46. "Anharmonic Effects in Phonon Physics" I. Physikalisches Institut, Aachen, Germany, February 2014.
45. "Solid-State Thermal Energy Conversion," Purdue University, Special Joint Condensed Matter Physics and BIRCK Nanotechnology Center Seminar, Oct. 18, 2013.
44. "Zeeman Spin-Seebeck Effect," Institute for Materials Research, Tohoku University, Sendai, Japan, Jan. 16, 2012, invited by Prof. Eiji Saitoh.
43. "New Design Strategies for High-efficiency Thermoelectric Materials," Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland, July 6, 2011, invite by Prof. J-P. Ansermet.
42. "High-efficiency Thermoelectric Materials," Department of Mechanical Engineering, University of Texas, Austin, May 4, 2011, invited by Prof. Li Shi.
41. "Resonant Levels," Department of Electrical Engineering, University of California Santa Cruz, April 29, 2011, invited by Prof. Ali Shakouri.
40. "High-efficiency Thermoelectric Materials: New Design Strategies, New Applications," Physics Department, Missouri Science and Technology University, Rolla, MS, Feb. 9, 2011, invited by Prof. Julia Medvedeva.

39. The Spin-Seebeck Effect in Semiconductors, Dept. of Physics, University of Michigan, Nov. 16, 2010, invited by Professor Ctirad Uher.
38. "High-efficiency Thermoelectric Materials: New Design Strategies, New Applications," Dept. of Physics, Case Western Reserve University, Cleveland, OH, Sep. 23, 2010, invited by Prof. P. L. Taylor.
37. "Resonant Levels Improve the Thermoelectric Figure of Merit," University of Michigan, Energy Frontier Research Center for Solar and Thermal Energy Conversion, Ann Arbor MI, Aug. 4, 2010.
36. "Thermoelectric Energy Conversion," EMPA, Duebendorf, Switzerland, July 10, 2010, invited by Dr. Anke Weidenkaff.
35. "Designing Chemical Bonds to Enhance the Thermoelectric Figure of Merit," Seminar, Dept. of Materials Science, Zhejiang University, Hangzhou, China, May 28, 2010, invited by Prof. Xinbing Zhao.
34. "Designing Chemical Bonds to Enhance the Thermoelectric Figure of Merit," Seminar, Institute of Chemical Science and Engineering Faculty of Basic Science, Ecole Polytechnique Federale de Lausanne, Aug. 14, 2009, invited by M. Graetzel.
33. "Intrinsic Figure of Merit Enhancements in Bulk Semiconductors," North American Solid State Chemistry Conference, Ohio State University, June 18, 2009.
32. "High-performance Thermoelectric Materials without Complex Nanostructure," Michigan State University, Center for Nanomaterials Design (CNDA), June 23, 2008.
31. "Nanostructured and Atomically Designed Thermoelectric Materials," Stanford Photonics Research Center, Stanford University, June 25, 2008.
30. "AgSbTe₂: Lead-free Lead Telluride, a New Thermoelectric Material," Physics Department, Michigan State University, Jan. 28, 2008, invited by S. J. Mahanti.
29. "Waste Heat Recovery," Ford Science and Innovation Center, April 25, 2007, invited by Clay Morrenville.
28. "Thermoelectric Nanomaterials," Ohio State University, given jointly to the Physics Department, the Department of Electrical Engineering and the Department of Mechanical Engineering, Dec. 1, 2004, invited by Prof. V. Subramanian.
27. "Transport Properties of Bismuth, Antimony and Zinc Nanowires," Ecole des Mines, Nancy, France, Nov. 7, 2003, invited by Prof. H. Scherrer.
26. "Transport Properties of Bismuth Nanowires," Physics Department, Wayne State University, Sep. 23, 2003, invited by Prof. Caroline Morgan.
25. "Transport in Bismuth Nanowires," Massachusetts Institute of Technology, Physics Department, Cambridge, MA 02139, Dec. 17, 2002, invited by Prof. M. S. Dresselhaus.
24. "Preparation and Transport Properties of Sb and Bi Nanowires," McMaster University, Hamilton, Ontario, Canada, April 10, 2000, invited by Professor H. R. Datar.
23. "Magnetic Position Sensors and Synthesis and Properties of Bismuth Nanowires," University of Illinois at Urbana-Champaign, Oct. 26, 1999, Professor Timothy N. Trick.
22. "Transport Properties of Bismuth Nanowires," Michigan State University, East Lansing, Nov. 13, 1998, invited by Professor J. Bass.
21. "Magnetic Field Sensors for Position Sensing in Automotive Applications," Invited talk at the 24th Annual Spring Symposium of the American Vacuum Society Meeting, Wayne State University, May 6, 1997.
20. "Temperature Dependence of Transport Properties of Mesoscopic Electron Devices," Condensed Matter Physics Seminar, Wayne State University, Detroit, MI, Feb. 7, 1995.
19. "Narrow-gap Semiconductor Magnetic Field Sensors and Applications," National Aeronautics and Space Administration, Cleveland, OH, July 9, 1992, invited by Dr. Amitava Banerjee.
18. "Narrow-gap Semiconductors for Automotive Applications," University of Michigan, Ann Arbor, MI, Sep. 27, 1991, invited by Professor Steve Yalisove.
17. "III-V Compound Semiconductors for Automotive Applications," Central Michigan University, Mt. Pleasant, MI, April 4, 1991, Society of Physics Students.
16. "III-V Compound Semiconductors for Automotive Applications," University of Maryland, College Park, MD, March 14, 1991, invited by Professor H. Dennis Drew.
15. "Two-dimensional Electron Gas Magnetic Field Sensors," Wayne State University, Detroit, MI, Sep. 5, 1990, invited by Professor Vladimir Mitin.

14. "Compound Semiconductors for Automotive Applications," Katolieke Universiteit Leuven, Leuven, Belgium, Nov. 20, 1989, invited by Dr. G. Borghs.
13. "Physics of Heterojunctions," Université Catholique de Louvain, Belgium, Nov. 13-24, 1989.
12. "Thermal Properties of High- T_C Superconductors," Naval Research Laboratory, Washington, D.C., June 14, 1989.
11. "Thermal Properties of Oxide Superconductors," Physics Department, Michigan State University, June 5, 1989, invited by Professor D. Tomasek.
10. "Thermal Conductivity and Electron-phonon Interactions in Oxide Superconductors," Center for Materials Science and Engineering Colloquium, Massachusetts Institute of Technology, Feb. 12, 1988, invited by Professor John M. Graybeal.
9. "Electronic and Magnetic Properties of PbTe/EuTe Superlattices," Princeton University, Electrical Engineering Department, Oct. 12, 1987, invited by Professor M. Shayegan.
8. "Magnetic and Transport Properties of PbTe/PbEuSeTe Semiconductors and Heterojunctions," Brown University, Electrical Engineering Department, Sep. 1987, invited by Professor A.V. Nurmikko.
7. "PbTe / PbEuSeTe Quantum Wells," Oersted Institute, University of Copenhagen, Aug. 1986, invited by Professor O.P. Hansen.
6. "In-situ Expansion Measurements of Graphite Fibers during Intercalation with Sulfuric Acid," Institute for Solid State Physics, University of Tokyo, June 1985, invited by Professor N. Miura.
5. "Magnetostriction and Dependence of Carrier Densities on Magnetic Fields in Semimetals," Oersted Institute, University of Copenhagen, Aug. 18, 1982, invited by Professor O.P. Hansen.
4. "Magnetostriction in Bismuth and Graphite," Institute for atomic energy, University of Kyoto, April 1982, invited by Professor T. Morimoto.
3. "Thermal Conductivity of Graphite Intercalation Compounds," Institute for Solid State Physics, University of Tokyo, April 23, 1982, invited by Professor S. Tanuma.
2. "Thermal Transport in Tin-doped Bismuth," University of Michigan, Oct. 1980, invited by Professor C. Uher.
1. "Temperature Dependence of p-type Doping in Bismuth," Oersted Institute, University of Copenhagen, Aug. 1979, invited by Professor O.P. Hansen.

Contributed Talks

187. "Magnon Drag and Spin Entropy Contribution to Thermopower of Li-doped MnTe," Y. Zheng, T. Lu, M. Rasoulianboroujeni, M. M. H. Polash, N. Liu, H. Zhao, D. Vashaee, and J. P. Heremans (given by Zheng), MRS Fall Meeting, Boston, MA, November 28, 2018.
186. "Nernst Thermopower in Bi-MnBi Composites," J. P. Heremans, K. Vandaele, B. He., and S. R. Boona (given by Heremans), MRS Fall Meeting, Boston, MA, November 28, 2018.
185. "Giant Anomalous Nernst Effect Observed in Single Crystal MnBi," B. He, S. R. Boona, B. Sales, and J. P. Heremans (given by He), MRS Fall Meeting, Boston, MA, November 28, 2018.
184. "Magnetically Driven Heat Transport in Field-induced Weyl Semimetals," D. Vu, K. Vandaele, N. Trivedi, and J. P. Heremans (given by Vu), MRS Fall Meeting, Boston, MA, November 28, 2018.
183. "Tools for Heat Management," (invited, given by Adams) Ford Motor Research, Dearborn, MI, November 15, 2018.
182. "High ZT in MnTe via Spin Physics" J. P. Heremans, Y. Zheng, H. Zhao, T. Lu, N. Liu, P.J. Sun, W. Wang, M. Rasoulianboroujeni, D. Vashaee (given by Heremans), International Conference on Thermoelectrics, Caen, France, July 1-4, 2018.
181. "Magnon Drag and Spin Entropy Contribution to Thermopower of Li-Doped MnTe," Y. Zheng, T. Lu, M. Rasoulianboroujeni, H. Zhao, D. Vashaee, and J. P. Heremans (poster by Zheng), Spin Caloritronics IX, Columbus, OH, June 26, 2018.
180. "Thermomagnetic Transport in Field-induced Weyl Semimetals," D. Vu, T. M. McCormick, K. Vandaele, N. Trivedi, and J. P. Heremans (poster by Vu), Spin Caloritronics IX, Columbus, OH, June 26, 2018.
179. "Nernst Thermopower in Bi-MnBi Composites," K. Vandaele, B. He, S. R. Boona, and J. P. Heremans (poster by Vandaele), Spin Caloritronics IX, Columbus, OH, June 26, 2018.

178. "Giant Anomalous Nernst Effect Observed in Single Crystal MnBi," B. He, S. R. Boona, B. Sales, and J. P. Heremans (poster by He), Spin Caloritronics IX, Columbus, OH, June 26, 2018.
177. "Application for Magnon Drag in Metal Thermoelectrics," M. Adams, E. Wells, S. J. Watzman, M. Verosky, and J. P. Heremans (poster by Adams), Spin Caloritronics IX, Columbus, OH, June 25, 2018.
176. "Thermomagnetic Transport in Field-induced Weyl Semimetals," (poster by Vu) NSF Site Visit, Columbus, OH, May 25, 2018.
175. "Magnetic Field Dependent Dirac Point and Thermomagnetic Transport in Bi_{1-x}Sb_x Alloys," (poster by Vu) Institute for Materials Research Materials Week, Columbus, OH, May 10, 2018.
174. "Thermopower and Nernst coefficients of binary alloys Fe-Co and Ni-Cr," (poster by Zheng) Institute for Materials Research Materials Week, Columbus, OH, May 10, 2018.
173. "Magnon Drag Thermopower of Antiferromagnetic Semiconductor Li Doped MnTe," (poster by Zheng) MURI Review, Columbus, OH, March 21, 2018.
172. "A New Classification for Axis Dependent Conduction Polarity," B. He, M. Scudder, Y. Wang, M. Q. Arguilla, N. Cultrara, J. E. Goldberger, W. Windl, and J. P. Heremans (given by He), APS Spring Meeting, Los Angeles, CA, March 9, 2018.
171. "Nernst Thermopower in Bismuth-Ferromagnetic Nanocomposites," K. Vandaele, B. He, S. R. Boona, and J. P. Heremans (given by Vandaele), APS Spring Meeting, Los Angeles, CA, March 8, 2018.
170. "Effect of Magnons on Interfacial Thermopower of YIG/Metal Heterostructures," A. Prakash, J. Brangham, S. J. Watzman, F. Yang, and J. P. Heremans (given by Heremans), APS Spring Meeting, Los Angeles, CA, March 6, 2018.
169. "Berry Curvature-induced Huge Anomalous Nernst Effect in the Absence of Magnetic Field in the Weyl Semimetal YbMnBi₂," S. J. Watzman, K. Manna, T. M. McCormick, S. Guin, C. Shekhar, N. Trivedi, C. Felser, and J. P. Heremans (given by Watzman), APS Spring Meeting, Los Angeles, CA March 6, 2018.
168. "Magnon Drag Thermopower of the Antiferromagnetic Semiconductor Li Doped MnTe," Y. Zheng, T. Lu, M. Rasoulianboroujeni, H. Zhao, D. Vashaee, and J. P. Heremans (given by Zheng), APS Spring Meeting, Los Angeles, CA, March 5, 2018.
167. "Portable Combustion Generator with Integrated Thermoelectric/Heat Exchanger," M. Adams, Y. Zheng, and J. P. Heremans (given by Adams), APS Spring Meeting, Los Angeles, CA, March 5, 2018.
166. "Magnetic Field Dependent Dirac Point in Bi_{1-x}Sb_x Alloys: Magnetoresistance and Thermoelectric Properties," D. Vu, K. Vandaele, B. He, and J. P. Heremans (given by Vu), APS Spring Meeting, Los Angeles, CA, March 5, 2018.
165. "New Approach to Thermoelectric Power Generation using Metal Alloys," (invited, given by Adams) Ford Motor Research, Dearborn, MI, November 15, 2017.
164. "Thermopower Enhancement in Bismuth Antimony Nanowire Composites," (poster by Vandaele), 36th International Conference on Thermoelectrics, Pasadena, CA, August 2, 2017.
163. "Magnon Drag Thermopower of Binary Ferromagnetic Alloys Fe-Co and Ni-C," (given by Zheng) 36th International Conference on Thermoelectrics, Pasadena, CA, August 2, 2017.
162. "Integrated Combustion Chamber/Heat Exchanger/Thermoelectric Generator," (given by Adams) 36th International Conference on Thermoelectrics, Pasadena, CA, August 2, 2017.
161. "Realization of the Spin Seebeck Effect in Bulk Nanocomposites," (prepared by Boona, given by Heremans) 36th International Conference on Thermoelectrics, Pasadena, CA, August 2, 2017.
160. "Electronic Transport Properties and Band Structure of 2-D Material NaSn₂As₂," (given by He) APS March Meeting, New Orleans, LA, March 17, 2017.
159. "Thermomagnetic Transport in the Weyl Semimetal NbP," (given by Watzman) APS March Meeting, New Orleans, LA, March 15, 2017.
158. "Magnon-Phonon Drag Induced in a Paramagnet," (given by Prakash) APS March Meeting, New Orleans, LA, March 14, 2017.
157. "Thermopower and Anomalous Nernst Coefficients of Binary Ferromagnetic Alloys Fe-Co and Ni-Cr," (given by Zheng) APS March Meeting, New Orleans, LA, March 13, 2017.
156. "Seebeck Effect in Bulk Composite Materials," (given by Boona) APS March Meeting, New Orleans, Louisiana, March 13, 2017.

155. “Magnon-drag Thermopower of Fe, Co, Ni, $\text{Fe}_{1-x}\text{Co}_x$, $\text{Ni}_{1-x}\text{Cr}_x$, $\text{Fe}_{0.85}\text{Ga}_{0.15}$,” (poster by Zheng) MURI Review, Columbus, OH, January 31, 2017.
154. “Magnon-drag as a Pathway to High-efficiency Thermoelectric Metals,” (invited, given by Watzman) University of Cincinnati Mechanical Engineering Graduate Seminar, Cincinnati, OH, January 20, 2017.
153. “Enhanced Thermoelectric Figure of Merit in Semiconductor Composites,” (given by Adams) MRS Fall Meeting, Boston, MA, November 30, 2016.
152. “Thermopower and Nernst Coefficients of Binary Alloys Fe_{1-x}M ($\text{M} = \text{Co}, \text{Ga}$),” (poster by Zheng) MRS Fall Meeting, Boston, MA November 29, 2016.
151. “Magnon-drag as a Pathway to High-efficiency Thermoelectric Metals,” (poster by Watzman) International Thermoelectrics Summer School, Golden, CO, July 2016.
150. “Magnon-drag as a Pathway to High-efficiency Thermoelectric Metals,” (poster by Watzman) Institute for Materials Research Materials Week, Columbus, OH, May 2016.
149. “Magnon-drag as a Pathway to High-efficiency Thermoelectric Metals,” (given by Watzman) APS March Meeting, Baltimore, MD, March 18, 2016.
148. “Optimizing Thermoelectric Properties in Composites,” (given by Adams) APS March Meeting, Baltimore, MD, March 18, 2016.
147. “Magnon-drag in Ca-doped YIG and Cobalt,” (given by Zheng) APS March Meeting, Baltimore, MD, March 18, 2016.
146. “Thermomagnetic and Magnetocaloric Properties of Heusler Compound $\text{Ni}_{45}\text{Co}_5\text{Mn}_{37}\text{In}_{13}$ and Thermomagnetic Properties of the Topological Weyl Semimetal NbP,” (given by Watzman) MRS Fall Meeting, Boston, MA, December 3, 2015.
145. “Overcoming the Effective Medium Limitations on Thermoelectric Composites,” (given by Adams) MRS Fall Meeting, Boston, MA, December 3, 2015.
144. “Magnon-drag Thermopower and Thermomagnetic Properties of Single-crystal Iron,” (poster by Watzman) Spin Thermal Workshop, Columbus, OH, September 16, 2015.
143. “Overcoming the Effective Medium Limitations on Thermoelectric Composites,” (given by Adams) International Thermoelectrics Conference, Dresden, Germany, June 29, 2015.
142. “Magnon-drag Thermopower and Thermomagnetic Properties of Single-crystal Iron,” (poster by Watzman) Institute for Materials Research Materials Week, Columbus, OH, May 14, 2015.
141. “Overcoming Effective Medium Limitations on Thermoelectric Composites,” (poster by Adams) AFOSR MURI Program Review, Columbus, OH, May 4, 2015.
140. “Magnon-drag Thermopower and Thermomagnetic Properties of Single-crystal Iron,” (given by Watzman) APS March Meeting, San Antonio, TX, March 3, 2015.
139. “Enhancement of Thermoelectric Performance in Composite Materials through Locally-modulated Doping,” (given by Adams) APS March Meeting, San Antonio, TX, March 3, 2015.
138. “Thermophysical and Thermomagnetic Properties of Heusler compound $\text{Ni}_{45}\text{Co}_5\text{Mn}_{37}\text{In}_{13}$,” American Physical Society, March Meeting, San Antonio, TX, March 2, 2015.
137. “Overcoming the Effective Medium Limitations on Thermoelectric Composites,” Materials Research Society, Fall Meeting, Boston, MA, December 4, 2014.
136. “Doping $\text{LiSbSe}_{2-x}\text{S}_x$ p-type with Sn Substitution for Sb,” (poster by Adams) MRS Fall Meeting, Boston, MA, December 3, 2014.
135. “Thermomagnetic Properties of Single-crystal Holmium and Single-crystal Iron,” (poster by Watzman), MRS Fall Meeting, Boston, MA, December 3, 2014.
134. “Improving Electronic Properties of Al Doped (p-type) CoSb_3 ,” (given by Adams) International Conference on Thermoelectrics, Nashville, TN, July 7, 2014.
133. “Thermomagnetic Properties of Single-crystal Holmium and Single-crystal Iron,” (poster by Watzman), International Conference on Thermoelectrics, Nashville, TN, July 7, 2014.
132. “Thermomagnetic Properties of Single-crystal Holmium and Single-crystal Iron,” (poster by Watzman), Institute for Materials Research Materials Week, Columbus, OH, May 2014.
131. “Phonon and Magnon Heat Transport and Drag Effects,” APS March Meeting, Denver, CO, March 6, 2014.
130. “On the Thermal Hall Effect in the Electrically Insulating Ferrimagnet Yttrium Iron Garnet,” S. R. Boona and J. P. Heremans, Q25.0009, APS March Meeting, Denver, CO, March 3-7, 2014.

129. "Thermomagnetic Properties of Single-crystal Holmium," S. J. Watzman, Y. B. Gao, H. Jin, S. R. Boona, and J. P. Heremans (given by Watzman), Q25.00005, APS March Meeting, Denver, CO, March 6, 2014.
128. "Experimental Determination of the Valence Band of Bi_2Se_3 ," Y. B. Gao, B. He, I. Androulakis, and J. P. Heremans (given by Gao), F34.00002, APS March Meeting, Denver, CO, March 3-7, 2014.
127. "Doping CoSb_3 p-type with Al Substitution for Sb," M. J. Adams, M. D. Nielsen, and J. P. Heremans (given by Adams), S25.00007, APS March Meeting, Denver, CO, March 6, 2014.
126. "Intermediate Valence Tuning and Seebeck Coefficient Optimization in Yb-based Low-Temperature Thermoelectric Materials," G. Lehr, D. Morelli, H. Jin, and J. P. Heremans, Q25.00003, APS March Meeting, Denver, CO, March 3-7, 2014.
125. "Negative Magnetoresistance and S-F Scattering in $\text{Pb}_{1-x}\text{Eu}_x\text{Se}$," S. Kim, Y. B. Gao, B. He, G. Lehr, Y. Lee, M. Kanatzidis, D. Morelli, and J. P. Heremans, Q25.00002, APS March Meeting, Denver, CO, March 3-7, 2014.
124. "Galvanomagnetic and Thermoelectric Properties of $\text{Bi}_2\text{Se}_{3-x}\text{S}_x$ Prepared by Spark Plasma Sintering and Annealing," He, B., Gao, Y. B., and Heremans, J. P., Q25.00013, March Meeting of the American Physical Society, Denver, Colorado, USA, March 3-7, 2014.
123. "Reducing the Lattice Thermal Conductivity of the Rocksalt I-V-VI₂ Compounds," M. D. Nielsen, S. Kim, M. Wuttig, F. Lange, and J. P. Heremans, M25.00004, APS March Meeting, Denver, CO, March 3-7, 2014.
122. "Observation of a Magnetic Field Dependence of the Lattice Thermal Conductivity," H. Jin, O. Restrepo, N. Antolin, W. Windl, S. Barnes, and J. P. Heremans, Q25.00007, APS March Meeting, Denver, CO, March 3-7, 2014.
121. Lehr, G., Jin, H., Morelli, D., and Heremans, J. P., BB12.02, "Controlling the Thermoelectric Properties of Intermediate Valence Compounds at Low Temperature Using Chemical Pressure: the $\text{Yb}_{1-x}\text{Sc}_x\text{Al}_2$ Solid Solution," Material Research Society Fall Meeting, Boston Massachusetts USA December 1-6, 2013.
120. Boona, S. R. and Heremans, J. P., "Thermal Hall Effect and Magnon Thermal Mean Free Path in Yttrium Iron Garnet," Physics Department at The Ohio State University Condensed Matter Experiment Seminar, Columbus, Ohio, USA November 14, 2013.
119. Jin, H., "Thermomagnetic Effects in Amorphous Ferromagnetic Alloys and the Transverse Spin-Seebeck Configuration," Gordon Research Conference, Spin Dynamics in Nanostructures, Hong Kong, China, August 18-21, 2013.
118. Jin, H., Jaworski, C. M., Yang, Z., Meyers, R. C., and Heremans, J. P., "Measurement of Phonon Drag Thermopower by InSb Phonon Thermocouple," 32nd International Conference on Thermoelectrics, Kobe, Japan, June 30-July 4, 2013.
117. Nielsen, M.D., Kim, S., Ozolins, V., and Heremans, J.P., "Thermoelectric Properties and the Role of Anharmonicity in I-V-VI₂ Compounds," DOE Energy Frontier Research Center Principal Investigators' Meeting, Washington DC, USA, July 18-19, 2013.
116. Jin, H. and Heremans, J. P., I5.06 "Improving Thermoelectric Performance of Polycrystalline n-type $\text{Bi}_{1-x}\text{Sb}_x$ Alloys," Materials Research Society Spring Meeting and Exhibit, San Francisco, CA USA, April 1-5, 2013.
115. Jin, H., Heremans, J. P., and Jaworski, C. M., I6.01, "The Phonon Thermocouple," Materials Research Society Spring Meeting and Exhibit, San Francisco, CA USA, April 1-5, 2013.
114. Gao, Y. B., Parker, D., and Heremans, J. P., T12.00012, "Valence Band Structure of Bi_2Se_3 ," American Physical Society Meeting, Baltimore, Maryland USA, March 18-22, 2013.
113. Wickey, K., Kent, T., Myers, R. C., Heremans, J. P., and Johnston-Halperin, E., U20.00002, "Towards FIB Patterning of Commercial SiN Membranes for Sensitive Magneto-calorimetry," American Physical Society Meeting, Baltimore, Maryland. USA, March 18-22, 2013.
112. Heremans, J. P., Jin, H., Jaworski, C. M., and Barnes, S., U18.00007, "Phonon Drag in InSb: Experiment," American Physical Society Meeting, Baltimore, Maryland USA, March 18-22, 2013.
111. Barnes, S. and Heremans, J. P., U18.00008, "Phonon Drag in InSb: Theory and 'Spin'-motive Force," American Physical Society Meeting, Baltimore, Maryland USA, March 18-22, 2013.
110. Jin, H., Yang, Z., Myers, R. C., and Heremans, J. P., Y14.00002, "Spin-Seebeck Effect in Amorphous Ferromagnetic Alloys," American Physical Society Meeting, Baltimore, Maryland USA, March 18-22, 2013.
109. Chamoire, A. M. and Heremans, J. P., Z12.10, "Thermomagnetic Effects in Elemental Rare-earth Single Crystals," American Physical Society Meeting, Baltimore, Maryland. USA March 18-22, 2013.

108. Nielsen, M. D., Ozolins, V., and Heremans, J. P., N12.00009, "Doping Studies of Alkali-metal Rocksalt Based I-V-VI₂ Compounds with Intrinsically Minimal Thermal Conductivity," American Physical Society Meeting, Baltimore, Maryland. USA March 18-22, 2013.
107. Kim, S., Wiendlocha, B., and Heremans, J. P., N12.00007, "P-type Electronic and Thermal Transport Properties of Mg₂Sn_{1-x}Si_x," American Physical Society Meeting, Baltimore, Maryland. USA March 18-22, 2013.
106. Chamoire, A. M. and Heremans, J. P., "Thermomagnetic Effects in Elemental Rare-earth Single Crystals," 245 American Chemical Society National Meeting & Exposition, New Orleans, LA USA, April 7-11, 2013.
105. Kim, S., Evola, E. E., Nielsen, M. D., and Heremans, J. P., B4.10, "Search for Resonant Levels in Mg₂Sn," Materials Research Society Fall meeting and Exhibit, Boston, Massachusetts USA, November 25-30, 2012.
104. Nielsen, M. D., Ozolins, V., and Heremans, J. P., "Doping Studies of I-V-VI₂ Compounds with Intrinsically Minimal Thermal Conductivity," 31st International Conference on Thermoelectricity, Aalborg, Denmark, July 9-12, 2012.
103. Jaworski, C. M., et al., A2_16, "Valence Band Structure of Highly Efficient p-type Thermoelectric PbTe/PbS Alloys," 31st International Conference on Thermoelectricity, Aalborg, Denmark, July 9-12, 2012.
102. Boona, S. R., et al., A1_2, "Enhanced Thermoelectric Properties of CePd₃ Through Thermal Conductivity Reduction," 31st International Conference on Thermoelectricity, Aalborg, Denmark, July 9-12, 2012.
101. Jin, H., Wiendlocha, B., and Heremans, J. P., A1_8, "Thermoelectric Properties of Alkali-doped Bismuth-Antimony Alloys and Discovery of Potassium as a Resonant Impurity," 31st International Conference on Thermoelectricity, Aalborg, Denmark, July 9-12, 2012.
100. Heremans, J. P., et al., A1_6, "Giant Spin-Seebeck effect in InSb," 31st International Conference on Thermoelectricity, Aalborg, Denmark, July 9-12, 2012.
99. Nielsen, M. D., Ozolins, V., and Heremans, J. P., "Lone Pair Electrons Reduce Thermal Conductivity of I-V-VI₂ Compounds," DOE Thermoelectric Applications Workshop, Baltimore, MD USA, March 19-22, 2012.
98. Nielsen, M. D., Ozolins, V., and Heremans, J. P., JJ7.3, "Thermal Conductivity and Soft Phonon Modes in I-V-VI₂ Compounds," Material Research Society Spring Meeting, San Francisco, CA USA, April 9-13, 2012.
97. Jin, H., Wiendlocha, B., and Heremans, J. P., JJ1.5, "Potassium is a Resonant Level in BiSb Alloys," Material Research Society Spring Meeting, San Francisco, CA USA, April 9-13, 2012.
96. Chamoire, A. M. and Heremans, J. P., JJ1.6, "Nernst-Ettingshausen Effect in Elemental Rare-earth." Material Research Society Spring Meeting, San Francisco, CA USA, April 9-13, 2012.
95. Jaworski, C. M., Myers, R. C., and Heremans, J. P., LL9.3, "Spin-Seebeck Power Generation," Material Research Society Spring Meeting, San Francisco, CA USA, April 9-13, 2012.
94. Nielsen, M. D., Hui, S., Uher, C., Tobola, J., and Heremans, J. P., L17.00010, "Thermoelectric Properties of CoSb_{3-x}Sn_x," American Physical Society Meeting, Boston, Massachusetts USA, Feb. 27-March 2, 2012.
93. Evola, E., Nielsen, M. D., Jaworski, C. M., and Heremans, J. P., L17.00004, "Thermoelectric Properties of Indium Doped PbSe," American Physical Society Meeting, Boston, Massachusetts USA, Feb. 27- March 2, 2012.
92. Gao, Y. B., Koenig, J., Nielsen, M. D., Boettner, H., and Heremans, J. P., L17.00002, "Fermi Level Pinning in Ti Doped PbTe," American Physical Society Meeting, Boston, Massachusetts USA, Feb. 27-March 2, 2012.
91. Heremans, J. P., Jin, H., Wiendlocha, B., L17.00001, "Potassium is a Resonant Level in Bi_{1-x}Sb_x Alloys," American Physical Society Meeting, Boston, Massachusetts USA, Feb. 27-March 2, 2012.
90. Chamoire, A. M. and Heremans, J. P., H17.00010, "Nernst-Ettingshausen Effect in Elemental Rare-Earth Single Crystals," American Physical Society Meeting, Boston, Massachusetts USA, Feb. 27- March 2, 2012.
89. Orovets, C., Jin, H., Wiendlocha, B., and Heremans, J. P., H17.00012, "Cryogenic Thermoelectric Properties of the Bismuth-Magnesium and Bismuth-Antimony-Magnesium Systems," American Physical Society Meeting, Boston, Massachusetts USA, Feb. 27- March 2, 2012.
88. Jaworski, C. M., Myers, R. C., and Heremans, J. P., L14.00005, "Spin-Seebeck Effect in III-V Based Semiconductors," American Physical Society Meeting, Boston, Massachusetts USA, Feb. 27- March 2, 2012.
87. Nielsen, M. D., Barabash, S. V., Ozolins, V., and Heremans, J. P., T11.1 "Thermal Conductivity of NaSbTe₂, AgSbTe₂ and their Alloys: Experimental Results," The 30th International Conference on Thermoelectrics, Traverse City, Michigan USA, July 17-21, 2011.
86. Chen, Y., Gao, Y. B., Nielsen, M. D., Zhu, T. J., Zhao, X. B., and Heremans, J. P., T11.2 "Transport Properties of (Ag_{1-y}SbTe_{2+z})_{1-x}(SnTe)_x Solid Solutions," The 30th International Conference on Thermoelectrics, Traverse City, Michigan USA, July 17-21, 2011.

85. Barabash, S., Nielsen, M. D., Heremans, J. P., and Ozolins, V., H4.2 “Phonon Softening and Low Thermal Conductivity in Cubic I-V-VI Semiconductors; The 30th International Conference on Thermoelectrics, Traverse City, Michigan, July 17-21, 2011.
84. Eric Evola, Michele Nielsen, and Joseph Heremans, P146. Thermoelectric properties of PbSe doped with Indium, The 30th International Conference on Thermoelectrics, Traverse City, Michigan, July 17-21, 2011.
83. Sergey V. Barabash, Vidvuds Ozolins, Michele D. Nielsen, and Joseph P. Heremans, Large Grüneisen parameter and strong off-stoichiometry in AgSbTe₂: a first principle study, American Physical Society March Meeting, Dallas, TX, March 21-25, 2011.
82. Hyungyu Jin, Bartłomiej Wiendlocha, Katherine Whitehouse, Eric Evola, and Joseph P. Heremans, Indium is an acceptor in bismuth, American Physical Society March Meeting, Dallas, TX, March 21-25, 2011.
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