

CURRENT POSITION

- Professor of Physics (July 2022 – Present), *University of Oklahoma*
- Associate Director (2016 – present), *Oklahoma Photovoltaics Research Institute*

AWARDS

- Ted S. Webb Presidential Professor (2020)

DEGREES

- Ph. D. Physics (2004), *University of Sheffield*, Sheffield, U.K.
Thesis: "Development and study of 1.3 μm InAs/GaAs quantum dot lasers."
- M.Sc. Semiconductor Science & Technology (2000), *Imperial College*, London, U.K.
- B.Eng. (Hons.) Medical Elect. & Inst. (1999), *University of Liverpool*, Liverpool, U.K.

PREVIOUS POSITIONS

- Associate Professor: (July 2017 – June 2022), *University of Oklahoma*. U.S.A.
- Assistant Professor: (August 2011 – July 2017), *University of Oklahoma*. U.S.A.
- Office of Naval Research Summer Faculty Fellow: (July-Sept. 2015; May-August 2016),
United States Naval Research Laboratory, Washington D.C., U.S.A
- Visiting Academic Fellow: (October 2009 – October 2012)
Solar Energy Materials Initiative, Department of Materials, University of Oxford,
Oxford, U.K.
- Senior Research Scientist: (Nov. 2008 – July 2011)
Sharp Laboratories Europe Ltd, Oxford, U.K.
- Senior Research Associate: with Professor Bruce D. McCombe (Sept. 2006 – Oct. 2008)
Department of Physics, University at Buffalo, Buffalo NY, U.S.A
- Marie Curie Research Fellow: with Dr. Fabrice Semond (July 2004 – August 2006)
Centre de Recherché sur l'Hétéro-Epitaxie et ses Applications (CRHEA)-CNRS,
Valbonne, France

RESEARCH ACTIVITIES*University of Oklahoma, USA*

- Third generation photovoltaics: hot carrier dynamics in type-II quantum wells
- Intermediate band solar cells based on antimony-capped InAs quantum dots
- Optical spectroscopy of dilute nitrides, CIGS, and perovskite systems for LILT space power applications
- Transport and impedance studies of colloidal quantum dot solar cells
- Carrier dynamics in 2D perovskites

Naval Research Laboratory, USA

- Optical spectroscopy of narrow-gap semiconductors
- Investigation of defect formation in dilute nitrides semiconductors

Solar Energy Initiative, University of Oxford, U. K.

- Impedance spectroscopy of QD solar cells
- Defect analysis in self-assembled quantum dots

Sharp Laboratories of Europe Ltd., U. K.

- Development of dilute nitrides solar cells for next generation multi-junction solar cells
- Synthesis, fabrication, and characterization of colloidal quantum dot solar cells
- Optical spectroscopy of nitrides colloidal quantum dots

University of Buffalo, USA

- Magneto-optical investigations of type-II II-V quantum dots
- Magneto-transport of narrow-gap semiconductors
- Single-QD spectroscopy on III-V magnetic quantum dots (with National Research Council, Canada)

CRHEA-CNRS, France

- Fabrication and development of gallium nitride based semiconductors on silicon
- Investigation of high temperature polaritons in GaN and ZnO microcavities
- Spectroscopy of wide-gap microcavities: angle resolved reflectivity and photoluminescence

PROFESSIONAL ACTIVITIES

- Conference *Chair*, “Oklahoma Photovoltaics Research Institute, Annual Symposium Workshop,” Norman, Oklahoma, April 2022
- Co-Program *Chair* (2022 – present) and Program Committee (2018 – 2022), “Physics, Simulation, and Photonic Engineering of Photovoltaic Devices,” Photonics West, SPIE Meeting
- Program Committee Member, Workshop on Nanoscale Devices & Systems (*WINDS*) 2022
- Guest Editor SPIE Journal of Photonics for Energy, Special Issue: Novel Photovoltaic Device Architectures, 2021-2022
- Poster Session Program Chair *IEEE* Photovoltaics Specialists Conference (2021); Registration Chair, *IEEE* Photovoltaics Specialists Conference (2020); Deputy Registration Chair, *IEEE* Photovoltaics Specialist Conference (2019)
- Proposal Review Panellist: NASA Space Technology Research Program (2018 – present); National Science Foundation EPM (2019 – present); Department of Energy (2020 – present); Z-NSERC (Canada)
- Sub-Area Chair: 1.2 Quantum-well, Wire, and Dot-Architected Devices, Area 1: Fundamental and New Concepts for Future Technologies, *IEEE* Photovoltaics Specialists Conference (2017 – present)
- Associate Director, Oklahoma Photovoltaics Research Institute (2016 - present)
- Sub-Area Chair: 1.5 Novel Material Systems, Area 1: Fundamental and New Concepts for Future Technologies, *IEEE* Photovoltaics Specialists Conference (2015 – 2017)
- Steering Committee Member, Microfabrication Research and Education Center (MREC), University of Oklahoma (Sept. 2014 – 2018)
- Department of Physics & Astronomy Experimental Facilities Committee Chair, University of Oklahoma (January 2014 – present)
- Graduate Student Society (G-PSI) Faculty Advisor, Department of Physics & Astronomy, University of Oklahoma (Fall 2015 – present)
- External PhD Thesis Examiner: School of Photovoltaic and Renewable Energy, University of New South Wales, Australia (2017 – present); University of Cambridge, U.K. (2022)

TEACHING/MENTORING

- Instructor for PHYS 1114, “Introduction Physics I: Non-Majors” (S2023 – 160 students)
- Instructor for PHYS 3223, “Modern Physics for Engineers” (F2022 – 129 students)
- Instructor for PHYS 1114, “Introduction Physics I: Non-Majors” (S2022 – 134 students)
- Instructor for PHYS 1114, “Introduction Physics I: Non-Majors” (F2021 – 86 students)
- Instructor for PHYS 4243/5243, “Solid State Physics” (S2021 – 14 students)
- Instructor for PHYS 2524, “Introduction to Physics II Engineers” (F2020 – 127 students)
- Instructor for PHYS 4243/5243, “Solid State Physics” (S2020 – 5 students)
- Instructor for PHYS 1114, “Introduction Physics I: Non-Majors” (F2019 – 75 students)
- Instructor for PHYS 1114, “Introduction Physics I: Non-Majors” (S2019 – 127 students)
- Instructor for PHYS 2524, “Introduction to Physics II Engineers” (S2018 – 207 students)
- Instructor for PHYS 2203, “Introduction Phys. III: Modern Physics (F2017 – 41 students)
- Instructor for PHYS 1215, “Introduction to Physics II for Majors” (S2017 – 23 students)
- Instructor for PHYS 2203, “Physics III: Modern Physics (F2016 – 53 students)
- Instructor for PHYS 1215, “Introduction to Physics II for Majors” (S2016 – 35 students)
- Instructor for PHYS 3223, “Modern Physics for Engineers” (F2015 – 127 students)
- Instructor for PHYS 2524, “Introduction to Physics II Engineers” (S2015 – 231 students)
- Instructor for PHYS 3223, “Modern Physics for Engineers” (F2014 – 137 students)
- Instructor for PHYS 1215, “Introduction to Physics II for Majors” (S2014 – 15 students)
- Instructor for PHYS 3223, “Modern Physics for Engineering” (F2013 – 70 students)
- Instructor for PHYS 1215, “Introduction to Physics II for Majors” (S2013 – 39 students)
- Instructor for PHYS 1311/1321, “General Labs for Non-Majors” (F2012 – 468 students)
- Instructor for PHYS 1311/1321, “General Labs for Non-Majors” (F2011 – 456 students)
- Currently mentoring: two postdoctoral researchers, six GRAs (PhD candidates); two Capstone Senior Project students. Graduated four PhD students and three MSc students (OU, 2011 – present), 3 OK-LSAMP Scholars, and 18 Capstone Senior Project students
- Faculty Advisor for Honors Research programs in Engineering (HERE), Chemistry (FYRE), and Physics (HRAP and REU) for Undergraduates (total 48: 2011 – present)

RESEARCH FUNDING (2011 – PRESENT)**Current Support:**

- ***National Science Foundation PIRE Program***
“US-Japan Partnership in Excitonic Soft Materials for Clean Energy.”
Project Period: 10/22 – 09/25
Total Budget (OU): \$627,413 (co-PI, lead: Furis) with Yamagata and Osaka Universities
- ***National Science Foundation ECCS Program***
“Towards the Realization of the Hot Carrier Solar Cell using Valley Photovoltaics.”
Project Period: 09/21 – 08/24
Total Budget: \$310,000 (single PI)
- ***Department of Energy State/National Laboratory Partnership Program***
“Hot Carrier Dynamics in Low-Dimensional Systems.”
Project Period: 10/2018-12/2022
Total Budget: \$674,000 (single PI)

Previous/Completed Support:

- ***NASA EPSCoR Program: Research Implementation Grant***
“Engineering Thin Film Solar Cells for Radiation Hardness, Lifetime and Efficiency.”
Project Period: 09/2019-08/2022
Total Budget: \$750,000 (co-PI; lead Saparov OU Chemistry)
- ***Oklahoma Center for the Advancement of Science & Technology (OCAST)***
“Deployable CIGS Solar Cells for Small Satellite Deep Space Missions.”
Project Period: 09/2018 – 08/2021.
Total Budget: \$300,000 (lead PI – collaboration with Amethyst Research Inc.)
- ***NASA EPSCoR Program: Research Implementation Grant***
“High Efficiency Flexible Dilute Nitrides Solar Cells for Space Applications.”
Project Period: 11/2016 – 6/2021
Total Budget: \$750,000 (lead PI on collaborative proposal with U. Tulsa and Oklahoma State University)

- *National Science Foundation ECCS Program*
“Type-II Hot Carrier Solar Cells: Control and Manipulation of Non-Equilibrium Carriers using Band Engineering.”
Project Period: 09/2016 – 12/2019
Total Budget: \$380,000 (single PI)
- NASA EPSCoR Program: Research Implementation Grant
“A Hybrid PV Up/Down Conversion and Biological System for Extended Space Travel.”
Project Period: 09/2015 – 08/2018
Total Budget: \$125,291 (co-PI, lead University of Tulsa - Harikumar)
- Oklahoma Center for the Advancement of Science & Technology (OCAS)
“Silicon Heterostructure Solar Cells based on Group-IV Colloidal Quantum Dots.”
Project Period: 10/2014 – 09/2016
Total Budget: \$66,014 (lead PI)
- NASA EPSCoR Program: Research Implementation Grant
“A Nanostructured Energy Harvesting & Storage System for Space Applications.”
Project Period: 10/2013-09/2016
Total Budget: \$126,000 (co-PI, Lead University of Tulsa – Teeters)
- National Science Foundation DMR Program
“Novel Magnetism in II-Mn-VI Type-II Quantum Dots controlled by Optical Excitation
Project Period: 08/2013-7/2016
Total Budget: \$42,027 (co PI, lead University of Buffalo – Petrou)
- Oklahoma Center for the Advancement of Science & Technology (OCAS)
“Antimonide Materials for Quantum Dot Photovoltaics.”
Project Period: 06/2012-05/2014
Total Budget: \$70,000 (lead PI with Santos (OU) and Hossain (Amethyst Research Inc.))
- Oklahoma Center for the Advancement of Science & Technology (OCAS)
“Development and Manufacture of Ultra-High Efficiency GaInNAs Solar Cells.”
Project Period: 06/2012-05/2014
Total Budget: \$115,191 (lead PI with (co-PI) Golding (Amethyst Research Inc.))

PUBLICATIONS & PRESENTATIONS – SUMMARY

Total publications: 81 (peer reviewed journals)

Total citations (excluding self-citations): 1702

Average citations per year: 95.55

Total *H*-index (Web of Science): 23

SELECTED JOURNAL PUBLICATIONS

- “Metal oxide barrier layers for terrestrial and space perovskite photovoltaics,” H. Afshari, B. K. Durant, A. R. Kirmani, D. P. Ostrowski, K. T. VanSant, T. A. Byers, R. S. Bramante, K. N. Heinselman, J. Tang, B. Stevens, K. Zhu, **I. R. Sellers**, B. Rout, and J. M. Luther, *Nature Energy* **8**, *in press* (2023)
- “Temperature dependent carrier extraction and the effects of excitons on emission and photovoltaic performance in $\text{Cs}_{0.05}\text{FA}_{0.79}\text{MA}_{0.16}\text{Pb}(\text{I}_{0.83}\text{Br}_{0.17})_3$ solar cells,” H. Afshari, B. K. Durant, A. R. Kirmani, S. A. Chacon, J. Mahoney, V. R. Whiteside, R. A. Scheidt, M. C. Beard, J. M. Luther, and **I. R. Sellers**, *ACS Applied Materials & Interfaces* **14**, 44358 (2022)
- “Toward Hot Carrier Extraction in Intervalley Photovoltaics Devices,” K. R. Dorman, V. R. Whiteside, D. K. Ferry, I. G. Yusuf, T. J. Legvold, T. D. Mishima, M. B. Santos S. J. Polly, S. M. Hubbard, and **I. R. Sellers**, *ACS Applied Energy Materials* **5**, 11159 (2022)
- “Electric Field and its Effect on Hot Carriers in InGaAs Valley Photovoltaic Devices,” K. R. Dorman, V. R. Whiteside, D. K. Ferry, T. D. Mishima, I. Yusuf, H. Esmailpour, M. B. Santos, and **I. R. Sellers**, *IEEE Journal of Photovoltaics* **12**, 1175 (2022)
- “Hot carrier dynamics and transport in III-V heterostructures for photovoltaic applications,” H. P. Piyathilaka, R. Sooriyagoda, V. R. Whiteside, T. D. Mishima, M. B. Santos, **I. R. Sellers**, and A. D. Bristow, *Journal of Photonics for Energy* **12**, 032209 (2022)

- “Non-equilibrium Hot-Carrier Transport in Type-II Multiple Quantum Wells for Solar-Cell Applications,” H. P. Piyathilaka, R. Sooriyagoda, V. R. Whiteside, T. D. Mishima, M. B. Santos, **I. R. Sellers**, and A. D. Bristow, *Physical Review Applied* **18**, 014001 (2022)
- “Countdown to perovskite Space launch: Guidelines to performing relevant radiation-hardness experiments,” A. R. Kirmani, B. K. Durant, J. Grandidier, N. Haegel, M. D. Kelzenberg, Y. M. Lao, M. D. McGehee, L. McMillon-Brown, D. P. Ostrowski, T. J. Peshek, B. Rout, **I. R. Sellers**, M. Steger, D. Walker, D. M. Wilt, K. T. VanSant, and J. M. Luther, *Joule* **6**, 1 (2022)
- “Pathways to Hot Carrier Solar Cells,” D. K. Ferry, V. R. Whiteside, and **I. R. Sellers**, *SPIE Journal of Photonics for Energy* **12**, 022204 (2022)
- “Radiation Tolerance of GaAs_{1-x}Sb_x Solar Cells,” H. Afshari, B. K. Durant, T. Thrasher, L. Abshire, V. R. Whiteside, S. Chan, D-Y. Kim, S. Hatch, M. Tang, J. S. McNatt, H-Y. Liu, M. R. McCartney, D. J. Smith, and **I. R. Sellers**, *Solar Energy Materials & Solar Cells* **233**, 111352 (2021)
- “Hot carrier redistribution and dynamics, electron-phonon interaction, and their role in thermal carrier relaxation in thin film halide perovskites,” S. Sourabh, V. R. Whiteside, Y. Zhai, M. C. Beard, B. K. Durant, and **I. R. Sellers**, *Physical Review Materials* **5**, 095402 (2021)
- “Radiation Stability of Mixed Tin-Lead Halide Perovskites: Implications for Space Applications,” B. K. Durant, H. Afshari, S. Sourabh, V. Yeddu, M. T. Bamidele, S. Singh, B. Rout, G. E. Eperon, D-Y. Kim, and **I. R. Sellers**, *Solar Energy Materials & Solar Cells* **230**, 111232 (2021)
- “Tolerance of Perovskite Solar Cells to Targeted Proton Irradiation and Electronic Ionization Induced Heating,” B. K. Durant, H. Afshari, S. Singh, B. Rout, G. E. Eperon, and **I. R. Sellers**, *ACS Energy Letters* **6**, 2362 (2021)

- “Hot carrier relaxation and inhibited thermalization in superlattice heterostructures: potential for phonon management,” H. Esmailpour, B. K. Durant, K. R. Dorman, V. R. Whiteside, J. Garg, T. D. Mishima, M. B. Santos, **I. R. Sellers**, J-F. Guillemoles, and D. Suchet, *Applied Physics Letters* **118**, 213902 (2021)
- “Hot carrier dynamics in InAs/AlAsSb multiple-quantum wells,” H. P. Piyathilaka, R. Sooriyagoda, H. Esmailpour, V. R. Whiteside, T. D. Mishima, M. B. Santos, I. R. Sellers, and A. D. Bristow, *Scientific Reports* **11**, 10483 (2021)
- “Challenges, myths, and opportunities in hot carrier solar cells,” D. K. Ferry, S. M. Goodnick, V. R. Whiteside, and **I. R. Sellers**, *Journal of Applied Physics* **128**, 220903 (2020)
- “The role of metastability and concentration on the performance of CIGS solar cells under LILT conditions,” H. Afshari, B. K. Durant, C. R. Brown, K. Hossain, D. Poplavskyy, B. Rout, and **I. R. Sellers**, *Solar Energy Materials & Solar Cells* **212**, 110571 (2020)
- “Role of exciton binding energy on LO phonon broadening and polaron formation in BA₂PbI₄ Ruddlesden-Popper films,” H. Esmailpour, V. R. Whiteside, S. Sourabh, G. E. Eperon, J. T. Precht, M. C. Beard, H. Lu, B. K. Durant, and **I. R. Sellers**, *Journal of Physical Chemistry C* **124**, 9496 (2020)
- “Exploiting Intervalley Scattering to Harness Hot Carriers in III-V Solar Cells,” H. Esmailpour, K. R. Dorman, D. K. Ferry, T. D. Mishima, M. B. Santos, V. R. Whiteside, and **I. R. Sellers**, *Nature Energy*, **5**, 336 (2020)
- “Phonon linewidths in InAs/AlSb superlattices derived from first principles – applications toward quantum well hot carrier solar cells,” J. Garg and **I. R. Sellers**, *Semiconductor Science & Technology* **35**, 044001 (2020)
- “Role of intervalley phonons in hot carrier stability and extraction in type-II InAs quantum well p-i-n diodes, V. R. Whiteside, H. Esmailpour, K. Dorman, T. D. Mishima, D. K. Ferry, M. B. Santos, and **I. R. Sellers**, *Semiconductor Science & Techn.: Special Issue “Recent Progress towards Hot Carrier Solar Cells (Invited Paper)*, **34**, 094001 (2019)

- “Flexible Cu(In,Ga)Se₂ Solar Cells for Outer Planetary Missions: Investigation Under Low-Intensity-Low-Temperature Conditions,” C. R. Brown, V. R. Whiteside, D. Poplavskyy, K. Hossain, M. S. Dhoubhadel, and **I. R. Sellers**, *IEEE Journal of Photovoltaics* **9**, 552 (2019)
- “Valence band states in InAs/AlAsSb multi quantum well hot carrier absorbers,” V. R. Whiteside, B. A. Magill, M. P. Lumb, H. Esmailpour, M. A. Meeker, R. R. H. H. Mudiyansele, A. Messenger, S. Vijayaragunathan, T. D. Mishima, M. B. Santos, I. Vurgaftman, G. A. Khodaparast, and **I. R. Sellers**, *Semiconductor Science. & Technology* **34**, 025005 (2019)
- “Potential of High-Stability Perovskite Solar Cells for Low-Intensity-Low-Temperature (LILT) Outer Planetary Space Missions,” C. R. Brown, G. E. Eperon, V. R. Whiteside, and **I. R. Sellers**, *ACS Applied Energy Materials* **2**, 814 (2019)
- “Enhanced hot electron lifetimes in quantum wells with inhibited phonon coupling,” H. Esmailpour, V. R. Whiteside, H. P. Piyathilaka, S. Vijayaragunathan, B. Wang, E. Adcock-Smith, K. P. Roberts, T. D. Mishima, M. B. Santos, A. D. Bristow, and **I. R. Sellers**, *Scientific Reports* **8**, 12373 (2018)
- An investigation of the role of radiative and non-radiative recombination processes in InAs/GaAs_{1-x}Sb_x quantum dot solar cells,” Y. Cheng, A. J. Meleco, A. J. Roeth, V. R. Whiteside, M. C. Debnath, T. D. Mishima, M. B. Santos, S. Hatch, H-Y. Liu, and **I. R. Sellers**, *IEEE Journal of Photovoltaics*, **8**, 487 (2018)
- “The effect of an InP cap layer on the photoluminescence of an In_xGa_{1-x}As_{1-y}P_y/In_zAl_{1-z}As quantum well heterostructure,” H. Esmailpour, V. R. Whiteside, L. C. Hirst, J. G. Tischler, R. J. Walters, and **I. R. Sellers**, *Journal of Applied Physics* **121**, 235301 (2017)
- “The effect and nature of N-H complexes in the control of the dominant photoluminescence transitions in UV-hydrogenated GaInNAs,” C. R. Brown, N. J. Estes, V. R. Whiteside, B. Wang, K. Hossain, T. D. Golding, M. Leroux, M. Al Khalfioui, J. G. Tischler, C. T. Ellis, E. R. Glaser, and **I. R. Sellers**, *RSC Advances* **7**, 25353 (2017)
- “Role of defects and surface states in the carrier transport and non-linearity of the diode characteristics in PbS colloidal quantum dot/ZnO solar cells,” Y. Cheng, D. C. M.

- Whitaker, R. Makkia, S. Cocklin, V. R. Whiteside, L. A. Bumm, E. Adcock-Smith, K. P. Roberts, P. Harikumar, and **I. R. Sellers**, *ACS Applied Mat. & Int.*, **9**, 13269 (2017)
- “Effect of occupation of the excited states on the determination of hot carrier temperature in InGaAsP quantum well absorbers,” H. Esmailpour, V. R. Whiteside, L. C. Hirst, C. T. Ellis, J. Tischler, M. P. Lumb, R. J. Walters, D. V Forbes, and **I. R. Sellers**, *Progress in PV: Research & Applications* **25**, 782 (2017)
 - “Suppression of phonon-mediated hot carrier relaxation in type-II InAs/AlAs_xSb_{1-x} quantum wells: a practical route to hot carrier solar cells,” H. Esmailpour, V. R. Whiteside, J. Tang, S. Vijayaragunathan, T. D. Mishima, S. Cairns, M. B. Santos, B. Wang, and **I. R. Sellers**, *Progress in PV: Research and Applications* **24**, 591 (2016)
 - “Investigation of InAs/GaAs_{1-x}Sb_x quantum dots for applications in intermediate band solar cells,” Y. Cheng, M. Fukuda, V. R. Whiteside, M. C. Debnath, P. J. Vallely, T. D. Mishima, M. B. Santos, K. Hossain, S. Hatch, H.Y. Liu, and **I. R. Sellers**, *Solar Energy Materials and Solar Cells* **147**, 94 (2016)
 - “High-density InAs/Ga_{1-x}Sb_x quantum-dot structures grown by molecular beam epitaxy for use in intermediate band solar cells,” M. C. Debnath, T. D. Mishima, M. B. Santos, Y. Cheng, V. R. Whiteside, **I. R. Sellers**, K. Hossain, R. B. Laghumavarapu, B. L. Liang, D. L. Huffaker, *Journal of Applied Physics* **119**, 114301 (2016)
 - “Improved performance in GaInNAs solar cells by hydrogen passivation,” M. Fukuda, V. R. Whiteside, J. C. Keay, A. Meleco, K. Hossain, T. D. Golding, M. Leroux, M. Al Khalfioui, and **I. R. Sellers**, *Applied Physics Letters* **106**, 141904 (2015)
 - “Effects of localization on Hot Carriers in InAs/AlAsSb quantum wells,” J. Tang, V. R. Whiteside, H. Esmailpour, S. Vijayaragunathan, T. D. Mishima, M. B. Santos, and **I. R. Sellers**, *Applied Physics Letters* **106**, 061902 (2015)
 - “Time-resolved magneto-photoluminescence studies of magnetic polaron dynamics in type-II QDs,” B. Barman, R. Oszwaldowski, L. Schweidenback, J. M. Pientka, Y. Tsai, W. C. Chou, W. C. Fan, J. R. Murphy, A. N. Cartwright, **I. R. Sellers**, A. G. Petukhov, I. Zutic, B. D. McCombe, and A. Petrou, *Phys. Rev. B* **92**, 035430 (2015)

- “Probing the nature of carrier localization in GaInNAs, epilayers using optical methods,” T. Ysai, B. Barman, T. Scarce, G. Lindberg, M. Fukuda, V. R. Whiteside, J. C. Keay, M. B. Johnson, **I. R. Sellers**, M. Al Khalfioui, M. Leroux, B. A. Weistein and A. Petrou. *Applied Physics Letters* **103**, 012104 (2013)
- “Measurement of the valence band-offset in a PbSe/ZnO heterojunction by X-ray photoelectron spectroscopy,” L. Li, J. J. Qiu, B. B. Weng, Z. J. Yuan, X. M. Li, X. Y. Gan, **I. R. Sellers**, Z. S. Shi. *Applied Physics Letters* **101**, 261601 (2012)
- “Improved performance of multilayer InAs/GaAs quantum-dot solar cells using a high-temperature GaAs space-layer,” F. K. Tutu, **I. R. Sellers**, M. G. Peinado, C. E. Pastone, S. M. Willis, A. A. R. Watt, T. Wang, and H-Y. Liu, *Journal of Applied Physics* **111**, 046101 (2012)
- “Carrier-Multiplication in bulk InN,” S. A. Jensen, J. Versluis, E. Canovas, J. J. Pijpers, **I. R. Sellers** and M. Bonn. *Applied Physics Letters* **101**, 222113 (2012)
- “Defect-Mediated Extraction in InAs/GaAs quantum dot solar cells,” S. M. Willis, J. A. R. Dimmock, F. Tutu, H-Y. Liu, M. G. Peinado, H. E. Assendar, A. A. R. Watt and **I. R. Sellers**. *Solar Energy Materials and Solar Cells* **102**, 142 (2012)
- “Improved Performance of multi-layer InAs/GaAs quantum-dot solar cells using high-temperature GaAs spacer layer,” F. Tutu, **I. R. Sellers**, M. G. Peinado, C. E. Pastone, S. M. Willis, A. A. R. Watt, T. Wang and H-Y. Liu, *Journal of Applied Physics* **111**, 046101 (2012)
- “Wide depletion width 1 eV GaInNAs solar cells by thermal annealing,” **I. R. Sellers**, W-S. Tan, K. Smith, S. Hooper, S. Day and M. Kauer, *Applied Physics Letters* **99**, 151111 (2011)
- “High temperature Magneto-polarons in Zn(Mn,Te) quantum dots,” **I. R. Sellers**, R. Oszwaldowski, V. R. Whiteside, M. Eginligil, A. Petrou, I. Zutic, W-C. Chou, A. Petukhov, S.J. Kim, A. N. Cartwright and B. D. McCombe. *Physical Review B*. **82**, 195320 (2010)
- “Optical investigations of bulk and multi-quantum well nitrides-based microcavities,” F. Reveret, F. Medard, P. Disseix, J. Leymarie, M. Mihailovic, A. Vasson, **I. R. Sellers**, F. Semond, M. Leroux, and J. Massies, *Optical Materials* **31**, 505 (2009)

- “Coherent Aharonov-Bohm oscillations in type-II ZnMnTe/ZnSe quantum dots.” **I. R. Sellers**, V. R. Whiteside, A. O. Govorov, W. C. Chou, I. Khan, A. Petrou and B. D. McCombe. *Physical Review B. Rapid Communications* **77**, 241302 (2008)
- “Strong light-matter coupling in ultrathin double dielectric mirror GaN microcavities.” K. Bejtka, R. W. Martin, P. R. Edwards, F. Reveret, A. Vasson, J. Leymarie, **I. R. Sellers**, J-Y. Duboz, M. Leroux and F. Semond. *Applied Physics Letters* **92**, 241105 (2008)
- “Aharonov-Bohm excitons at elevated temperature in type-II ZnTe/ZnSe quantum dots” **I. R. Sellers**, V. R. Whiteside, I. L. Kuskovsky, A. O. Govorov and B. D. McCombe. *Physical Review Letters* **100**, 136405 (2008)
- “Polariton relaxation bottleneck and its thermal suppression in bulk GaN microcavities,” F. Stokker-Cheregi, A. Vinattieri, F. Semond, M. Leroux, **I. R. Sellers**, J. Massies, D. Solnyshov, G. Malpeuch, M. Colocci, and M. Gurioli, *Applied Physics Letters* **92**, 042119 (2008)
- “Fabrication and characterization of ultrathin double dielectric mirror GaN microcavities,” K. Bejtka, P. R. Edwards, R. W. Martin, F. Reveret, A. Vasson, J. Leymarie, **I. R. Sellers**, M. Leroux, and F. Semond, *Semiconductor Science & Technology* **23**, 045008 (2008)
- “Time-resolved Photoluminescence of type-II quantum dots and isoelectronic centers in Zn-Te-Se superlattice structures.” M. C-K. Cheung, **I. R. Sellers**, A. N. Cartwright and B. D. McCombe. *Applied Physics Letters* **92**, 032106 (2008)
- “Strong light-matter coupling in ultrathin double dielectric mirror GaN microcavities,” K. Bejtka, F. Reveret, R. W. Martin, P. R. Edwards, A. Vasson, J. Leymarie, **I. R. Sellers**, J-Y. Duboz, M. Leroux, and F. Semond. *Applied Physics Letters* **92**, 241105 (2008)
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- “Strong light matter coupling with the A and B excitons in GaN microcavities.” **I. R. Sellers**, F. Semond, M. Leroux, J. Massies, A-L. Henneghien, P. Disseix, J. Leymarie and A. Vasson. *Physical Review B*. **73** 033304 (2006)

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- “Mechanism for improvements of optical properties of 1.3 μm InAs/GaAs quantum dots by a combined InAlAs-InGaAs cap.” H. Y. Liu, C. M. Ley, **I. R. Sellers**, T. J. Badcock, D. J. Mowbray, M. S. Skolnick, R. Beanland, M. Hopkinson and A. G. Cullis. *Journal of Applied Physics* **98**, 083516 (2005)
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- “Effect of thermal annealing and strain engineering on the fine structure of quantum dot excitons,” A. I. Tartakovskii, M. N. Makhonin, I. R. Sellers, J. Cahill, A. D. Andreev, D. M. Whittaker, J-P. R. Wells, A. M. Fox, D. J. Mowbray, M. S. Skolnick, H-Y. Liu, and M. Hopkinson, *Physical Review B* **70**, 193303 (2004)

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- “Improved Temperature performance for 1.3 μm quantum dots using AlInAs dots-in-a-well structure.” H. Y. Liu, **I. R. Sellers**, M. Hopkinson, D. J. Mowbray and M. S. Skolnick. *Applied Physics Letters* **83**, 3716 (2003)
- “Room-temperature, ground state lasing for red-emitting vertically aligned InAlAs/AlGaAs quantum dots grown on a GaAs (100) substrate.” H. Y. Liu, **I. R. Sellers**, R. J. Airey, et al. *Applied Physics Letters* **80**, 3769 (2002)

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- “True Hot-carrier solar cell and hot carrier transfer,” D. K. Ferry, V. R. Whiteside, and **I. R. Sellers**, *United States Patent Application or PCT No. 7/285,360.*, 04/14/2021
- “Multi-Bandgap Charged-Coupled Device (CCD),” B. Bonnie, N. Lydick, V. R. Whiteside, and **I. R. Sellers**, *Provisional Application No. 4313-03200 (2020-038)*, 03/15/2021
- “Nitride Photovoltaic or Photoconductive Devices,” K. L. Smith, R. S. Tuley, **I. R. Sellers**, S. Day, M. Kauer, P. N. Taylor, M. A. Schreuder, and M. J. P. Alcocer. *Patent No. GB2496200 (A)*, 2013-05-08
- “High Efficiency InGaAsN solar cell and method of making the same,” W-S. Tan, **I. R. Sellers**, S. E. Hooper, and M. Kauer. *Patent No. EP2398062 (A2)*, 2011-12-21

BOOK CHAPTERS

- “Perovskite Solar Cells on the Horizon for Space Power Systems,” B. K. Durant, B. Rout, and **I. R. Sellers** in: *Photovoltaics for Space*, edited by S. Bailey, Chapter 7, pp. 175 - 195, published by Elsevier (2022)

- “Optical Aharonov-Bohm Effect in type-II quantum dots,” **I. R. Sellers**, I. L. Kuskovsky, A. O. Govorov, and B. D. McCombe in: Physics of Quantum Rings, Chapter 11, pp. 267-297, NanoScience and Technology Series, Springer, Berlin - Heidelberg (2014). ISBN 978-3-642-39196-5

SELECTED CONFERENCE PROCEEDINGS

- “Radiation tolerance of GaAsSb solar cells: A candidate III-V system for space applications,” H. Afshari, B. K. Durant, T. Thrasher, L. Abshire, V. R. Whiteside, S. Chan, D. Kim, S. Hatch, M. Tang, J. McNatt, H-Y. Liu, D. Smith, and **I. R. Sellers**, *Proceedings of 48th IEEE PVSC June 2021*
- “The role of valley degeneracy in carrier extraction in valley photovoltaic solar cells,” K. R. Dorman, V. R. Whiteside, D. K. Ferry, I. G. Yusuf, T. J. Legvold, T. D. Mishima, M. B. Santos, S. J. Polly, S. M. Hubbard, and **I. R. Sellers**, *Proceedings of 48th IEEE PVSC June 2021*
- “Hot Carrier Solar Cells based on Inter-Valley Scattering: A Different Approach Towards a Practical Solution,” H. Esmailpour, K. R. Dorman, V. R. Whiteside, D. K. Ferry, T. D. Mishima, M. B. Santos, and **I. R. Sellers**, *Proceedings of 46th IEEE PVSC, Chicago IL, U. S. A.*
- “Control of hot carrier thermalization in type-II quantum wells: a route to practical hot carrier solar cells,” H. Esmailpour, V. R. Whiteside, H. P. Piyathilaka, S. Vijayaragunathan, B. Wang, K. P. Roberts, T. D. Mishima, M. P. Lumb, M. B. Santos, A. D. Bristow, and **I. R. Sellers**, *Proceedings of WCPEC-7/PVSC-45, Hawaii USA (2018)*
- “An investigation of the role of recombination processes in InAs/GaAs_{1-x}Sb_x quantum dot solar cells,” Y. Cheng, A. Meleco, A. J. Roeth, V. R. Whiteside, M. C. Debnath, M. B. Santos, T. D. Mishima, S. Hatch, H. Y. Liu, and **I. R. Sellers**, *Proceedings of 44th IEEE PVSC, Washington D.C., USA (2017)*
- “Evidence of suppressed hot carrier relaxation in type-II InAs/AlAsSb quantum wells: A potential system for hot carrier solar cells,” H. Esmailpour, V. R. Whiteside, J. Tang, S. Vijayaragunathan, T. D. Mishima, M. B. Santos, and **I. R. Sellers**, *Proc. of SPIE (2016)*
- “Investigation of InAs/GaAs_{1-x}Sb_x quantum dots for applications in intermediate band solar cells,” Y. Cheng, M. Fukuda, V. R. Whiteside, M. C. Debnath, P. J. Vallely, A. J.

- Meleco, A. J. Roeth, T. D. Mishima, M. B. Santos, K. Hossain, S. Hatch, H-Y. Liu, and I. R. Sellers, *Proceedings of 43rd IEEE PVSC, Portland OR, USA (2016)*
- “Hot-carrier effects in type-II heterostructures,” L. C. Hirst, M. K. Yakes, C. A. Affouda, C. G. Bailey, J. G. Tischler, H. Esmailpour, V. R. Whiteside, **I. R. Sellers**, M. P. Lumb, D. V. Forbes, and R. J. Walters, *Proc. of 42nd IEEE PVSC, New Orleans LA, USA (2015)*
 - “Improved performance of GaInNAs solar cells after UV-activated hydrogenation,” M. Fukuda, V. R. Whiteside, J. C. Keay, M. Al Khalfioui, M. Leroux, K. Hossain, T. D. Golding, and **I. R. Sellers**, *Proc. of 42nd IEEE PVSC, New Orleans LA, USA (2015)*
 - “Selective passivation of nitrogen clusters and impurities in photovoltaic GaInNAs solar cells,” M. Fukuda, V. R. Whiteside, J. C. Keay, M. B. Johnson, M. Al Khalfioui, M. Leroux, K. Hossain, T. D. Golding, and **I. R. Sellers**, *Proceedings of 41th IEEE PVSC, pp. 0669-0673, Denver CO, USA (2014)*
 - “Evidence of Hot carriers at elevated temperatures in InAs/AlAsSb quantum wells,” J. Tang, V. R. Whiteside, H. Esmailpour, S. Vijayaragunathan, T. D. Mishima, M. B. Santos, and **I. R. Sellers**, *Proceedings of SPIE 9358*, 93580Z (2015)
 - “Modulation of the Aharonov-Bohm effect in type-II II-VI ZnSe:Te quantum dots by a FIR laser,” **I. R. Sellers**, V. R. Whiteside, I. L. Kuskovsky, A. O. Govorov, and B. D. McCombe, *Physica E: Low-dimensional Systems and Nanostructures* **40**, 1819 (2008)
 - “Ultrafast time-resolved photoluminescence of Zn-Se-Te multilayers with type-II ZnTe/ZnSe quantum dots,” M. C-K. Cheung, **I. R. Sellers**, I. L. Kuskovsky, A. N. Cartwright, and B. D. McCombe, *Proceedings of SPIE 6892*, 68921A (2008)
 - “From evidence of strong light-matter coupling to Polariton emission in GaN microcavities,” **I. R. Sellers**, F. Semond, M. Zamfirescu, F. Stokker-Cheregi, P. Disseix, M. Leroux, J. Leymarie, M. Gurioli, A. Vinattieri, G. Malpuech, A. Vasson, and J. Massies, *Physica-Status-Solidi B: Basic Solid State Physics* **243**, 1882 (2007)
 - “Roles of aluminium indium nitride insertion layers in fabrication of GaN-based microcavities,” K. Bejtka, F. Rizzi, P. R. Edwards, R. W. Martin, E. Gu, M. D. Dawson, I. M. Watson, **I. R. Sellers**, and F. Semond, *Physica-Status-Solidi A: Applications and Materials Science* **202**, 2648 (2005)
 - “Lasing and spontaneous emission characteristics of 1.3 μm In(Ga)As quantum-dot lasers,” **I. R. Sellers**, H-Y. Liu, T. J. Badcock, K. M. Groom, D. J. Mowbray, M.

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- “Growth and characterization of multiple layer quantum dot lasers,” P. M. Smowton, C. L. Walker, I. C. Sandall, **I. R. Sellers**, D. J. Mowbray, H-Y. Liu, M. Gutierrez, and M. Hopkinson, *Proceedings of SPIE* **5738**, 57380A (2005)
- “Enhanced photoluminescence intensity of 1.3 μm multi-layer InAs/InGaAs dots-in-a-well structures using a high growth temperature spacer layer step,” H-Y. Liu, T. J. Badcock, **I. R. Sellers**, W. M. Soong, K. M. Groom, M. Hopkinson, D. J. Mowbray, and M. S. Skolnick, *Physica E: Low-dimensional Systems and Nanostructures* **26**, 129 (2005)

INVITED SEMINARS/COLLOQUIA

- ““Next Generation Photovoltaics,” *Invited Colloquium*, Department of Physics & Astronomy, George Mason University, October 2022
- ” *Invited Colloquium*, Department of Electrical, Computer and Electronic Engineering, University at Buffalo SUNY, October 2022
- “Next Generation Photovoltaics: The Hot Carrier Solar Cell,” *Invited Seminar*, Department of Electrical, Computer and Electronic Engineering, University at Buffalo SUNY, August 2022
- “Towards the Hot Carrier Solar Cell,” *Texas Energy Institute Seminar Series*, University of Texas at Austin, April 2022
- “Next Generation Photovoltaics: The Hot Carrier Solar Cell.” *Invited Colloquium*, Department of Mechanical Engineering, Vanderbilt University, October 2021
- “Indium Nitride: A Potential Material for Hot Carriers Solar Cells?” *Invited Seminar*, United Kingdom Nitrides Consortium, Summer Seminar Series, July 2021
- “Metal Halide Perovskites for Space,” *Invited “Lightening” Talk*, Keck Institute for Space Studies (KISS), Non-Nuclear Exploration of the Solar System Workshop, Caltech, April 2021
- “Metal Halide Perovskite Solar Cells for Space Applications,” *Invited Seminar*, National Renewable Energy Laboratory, Golden CO, USA, March 2021

- “Next Generation Solar Cells for Utility-Scale and Space Power Applications,” **Invited Seminar**, Department of Electrical & Computer Engineering, University at Buffalo SUNY, Buffalo NY, USA, September 2020
- “Towards the Realization of the Hot Carrier Solar Cells using Valley Photovoltaics,” **Invited Colloquium**, Department of Electrical, Computer, and Energy Engineering, Arizona State University, Tempe AZ, USA, January 2020
- “Next Generation Photovoltaics and the Applications of Low-Dimensional Systems,” **Invited Colloquium**, Department of Material Science, Engineering, and Commercialization, Texas State University, San Marcos, Texas, USA, November 2019
- “Valley Photovoltaics: A practical route to the realization of the hot carrier solar cell,” **Invited Seminar**, Photon Science Institute, University of Manchester, Manchester, U.K., October 2019
- “Next Generation Photovoltaics and the Applications of Low-Dimensional Systems,” **Invited Colloquium**, Department of Physics, University of North Texas, Denton, Texas, USA, August 2019
- “Next Generation Photovoltaics: Routes to High-Efficiency Solar Cells and Advanced Systems for Space,” **Invited Seminar**, Institut Photovoltaique, d’Ile-de-France (IPVF), Palaiseau, France, January 2019
- “Routes to High Efficiency Solar Cells: Next Generation Photovoltaics,” **Invited Seminar**, North East Centre for Energy Materials, Northumbria University, Newcastle, United Kingdom, October 2018
- “Routes to High Efficiency Solar Cells: 3rd Generation Photovoltaics,” **Graduate Seminar Series (Invited)**, Department of Electrical & Computer Engineering, Old Dominion University, Virginia, USA, November 2017
- “The potential of type-II systems for 3rd generation photovoltaics: hot carrier absorbers and intermediate band solar cells,” **Invited Seminar**, Department of Physics & Astronomy, University of Sheffield, November 2017
- “The potential of type-II systems for 3rd generation photovoltaics: hot carrier absorbers and intermediate band solar cells,” **Invited Seminar**, Department of Materials, University of Oxford, November 2017

- “The potential of type-II systems for 3rd generation photovoltaics: hot carrier absorbers and intermediate band solar cells,” *Invited Seminar, Department of Electrical & Electronic Engineering, University College London, November 2017*
- “Routes to High-Efficiency Solar Cells: 3rd Generation PV,” *Invited Seminar, US National Renewable Energy Laboratory, Golden CO. USA, September 2017*
- “Next-generation Solar Cells: Routes to High Efficiency Photovoltaics,” *Invited Colloquium, Department of Physics, Oklahoma State, Stillwater OK. U.S.A, March 2017*
- “Routes to High Efficiency Photovoltaics,” *Invited Seminar, Department of Engineering Physics, Tulsa University, Tulsa OK. USA, October 2016*
- “Routes to high efficiency Photovoltaics using quantum wells and quantum dots,” *Invited Seminar, Howard University, Washington D.C., USA, September 2016*
- “Routes to ultra-high efficiency solar cells: third generation photovoltaics,” *Departmental Colloquium, Department of Physics & Astronomy, University of Oklahoma, Norman OK, USA, September 2016*
- “The potential of type-II systems for 3G PV: Hot carriers and Intermediate Bands,” *Invited Seminar, Rochester Institute of Technology, Rochester, N. Y. USA, July 2016*
- “Selective Passivation of Nitrogen Defects in GaInNAs Solar Cells,” *Invited Seminar, United States Naval Research Laboratory, Washington D.C., USA. March 2016*
- “Hot carriers at elevated temperatures in InAs/AlAsSb quantum wells,” *Invited Condensed Matter Seminar, Department of Physics, Virginia Polytechnic and State University, Blacksburg, Virginia, USA. November 2014*
- “Routes to High Efficiency Solar Cells: 3rd Generation Photovoltaics,” *Invited Colloquium, Department of Physics & Astronomy, West Virginia University, Morgantown, West Virginia, USA. September 2014*
- “Third Generation Photovoltaics: High Efficiency Solar Cells,” *Invited Colloquium, Dept. of Physics & Astronomy, Wichita State University, Wichita KS, USA. May 2014*
- “Robust Magnetic Polarons in type-II Zn(Mn,Te)/ZnSe quantum dots,” *Invited Seminar, Department of Materials, University of Oxford, Oxford, UK. July 2012*
- “High Efficiency Photovoltaics & Quantum Dots,” *Invited Colloquium, Dept. of Physics & Engineering, University of Tulsa, Tulsa, Oklahoma, USA. March 2012*

- “Semiconductor Nanostructures: Magneto-optical properties and applications in next generation PV,” **Invited Colloquium**, *Department of Physics & Astronomy, University of Oklahoma, Norman, Oklahoma, USA. April 2011*
- “Photovoltaics at Sharp Laboratories Europe,” **Invited**, *Scottish Solar Energy Society 3rd Generation PV Workshop, Heriot Watt University, Edinburgh, UK. May 2010*
- “Semiconductor Structures for Novel Optoelectronic Devices and High Efficiency Photovoltaics,” **Invited Colloquium**, *Dept. of Electrical/Electronic Engineering, University at Buffalo, Buffalo NY, USA. March 2010*
- “Optical Aharonov-Bohm Effect in type-II ZnSe:Te quantum dots,” **Invited colloquium**, *Department of Physics, University at Buffalo, Buffalo NY, USA. October 2006*

INVITED CONFERENCE PRESENTATIONS

- “Perovskite Solar Cells a New Horizon for Space Power Systems?” **Invited**, *MRS Spring Meeting, San Francisco CA, April 2023*
- “Valley Photovoltaics: A new approach towards the hot carrier solar cell.” **Invited**, *Compound Semiconductor Week (CWS – 2022), Ann Arbor, MI, June 2022*
- “The role of intervalley phonons in hot carrier transfer and extraction in InAs/AlAsSb quantum well solar cells,” **Invited**, *Photonics West, San Francisco CA, February 2020*
- “Controlling hot electron thermalization and extraction via phonon management,” **Invited**, *Hot carrier Dynamics in Advance Concepts Solar Cells Workshop, Institute of Advanced Studies, Technical University of Munich, Munich, Germany, October 2019*
- “Hot carriers in type-II quantum wells,” **Invited**, *SPIE Photonics West, San Francisco CA, February 2019*
- “Inhibited hot carrier thermalization in type-II QWs,” **Invited**, *Workshop on Innovative Nanoscale Devices and Systems (WINDS), Kohala Coast, Hawaii, November 2018*
- “Hot carriers in quantum wells,” **Invited**, *Plus Alliance Meeting, Chicheley Hall, Newport Pagnell, U. K., October 2018*
- “Hot carriers in type-II quantum wells,” **Invited**, *2nd International Workshop on Magnetic Excitations in Semiconductors, Buffalo NY, USA, July 2018*
- “The potential of type-II quantum dots and quantum wells for third generation photovoltaics,” **Invited**, *SPIE Photonics West, San Francisco CA, USA, January 2017*

- “Hot carriers in InAs/AlAs_{1-x}Sb_x quantum wells: an interesting system for practical hot carrier solar cells,” *Invited*, *SPIE Photonics West, San Francisco CA, USA, Feb. 2015*
- “Hot-carrier effects in type-II heterostructures,” L. C. Hirst, M. K. Yakes, C. G. Bailey, J. G. Tischler, V. R. Whiteside, **I. R. Sellers**, M. P. Lumb, D. V. Forbes, and R. J. Walters, *Invited*, *42nd IEEE PV Specialists Conference, New Orleans LA, USA. June 2015*
- “Recent Progress in developing GaInNAs for Photovoltaics,” *Invited*, *International Workshop on Bismide Semiconductors, Fayetteville AR, USA. July 2013*
- “Narrow-Gap Semiconductors for High-Efficiency Photovoltaics,” *Invited*, *CMOS Emerging Technologies Conference, Whistler, Canada, July 2011*
- “Evidence of Strong-coupling at room temperature from both simple planar and semi-epitaxially grown DBR microcavities on silicon,” **I. R. Sellers**, F. Semond, M. Leroux, J. Massies, N. Ollier, J. Leymarie, P. Disseix, A. Vasson and D. M. Whittaker. *Invited*, *Physics of Light-Matter Coupling in Semiconductor Nanostructures (PLMCN5), Glasgow, Scotland (UK), June 2005.*

SELECTED CONTRIBUTED CONFERENCE PRESENTATIONS

- “Evidence of hot carriers in metal halide perovskite solar cells,” S. Sourabh, H. Afshari, V. R. Whiteside, G. E. Eperon, R. A. Scheidt, T. D. Creason, M. Furis, A. Kirmani, B. Saparov, J. M. Luther, M. C. Beard, and **I. R. Sellers**, *Workshop on Innovative Nanoscale Devices and Systems (WINDS), Kauai, Hawaii, U.S.A (2022)*
- “Radiation tolerance, high temperature stability, and self-healing in triple halide perovskite solar cells,” H. Afshari, V. R. Whiteside, S. A. Chacon, B. K. Durant, B. Rout, and **I. R. Sellers**, *Space Photovoltaic Research & Technology Conference (SPRAT XXVII), Cleveland OH, U.S.A. (2022)*
- “Radiation tolerance, high temperature stability, and self-healing of triple halide perovskite solar cells,” H. Afshari, S. A. Chacon, B. K. Durant, R. Crawford, B. Rout, G. E. Eperon, and **I. R. Sellers**, *Proceedings of the 49th IEEE PVSC, Philadelphia PA, U.S.A. June 2022*
- “Electric Field and its Effect on Hot Carrier in InGaAs Valley PV Devices,” K. R. Dorman, V. R. Whiteside, D. K. Ferry, T. D. Mishima, H. Esmaelpour, M. B. Santos,

and **I. R. Sellers**, Proceedings of the 49th IEEE PVSC, Philadelphia PA, U.S.A. June 2022 – **Student Award Finalist**

- “Radiation tolerance of GaAsSb solar cells: A candidate III-V system for space applications,” H. Afshari, B. K. Durant, T. Thrasher, L. Abshire, V. R. Whiteside, S. Chan, D. Kim, S. Hatch, M. Tang, J. McNatt, H-Y. Liu, D. Smith, and **I. R. Sellers**, 48th IEEE vPVSC June 2021 – **Student Best Presentation Award Winner**
- “The role of valley degeneracy in carrier extraction in valley photovoltaic solar cells,” K. R. Dorman, V. R. Whiteside, D. K. Ferry, I. G. Yusuf, T. J. Legvold, T. D. Mishima, M. B. Santos, S. J. Polly, S. M. Hubbard, and **I. R. Sellers**, 48th IEEE vPVSC June 2021
- “Hot carriers and phonon relaxation processes in InAs/AlAsSb quantum well solar cells,” B. K. Durant, K. R. Dorman, V. R. Whiteside, H. Esmailpour, T. D. Mishima, M. B. Santos, J. Garg, J-F. Guillemoles, D. Suchet, and **I. R. Sellers**, SPIE virtual Photonics West February 2021
- “Valley Photovoltaics and the search for the Hot Carrier Solar Cell,” D. K. Ferry, S. M. Goodnick, **I. R. Sellers**, V. R. Whiteside, Proceedings of 76th IEEE vPVSC 2020 - **Selected as Highlight Paper – Area 1**
- “CIGS Solar Cells for Outer Planetary Space Applications: The Effect of Proton Irradiation,” H. Afshari, B. K. Durant, K. Hossain, D. Poplavskyy, B. Rout, and **I. R. Sellers**, Proceedings of 76th IEEE vPVSC 2020
- “Hot Carrier Solar Cells based on Inter-Valley Scattering: A Different Approach Towards a Practical Solution,” H. Esmailpour, K. R. Dorman, V. R. Whiteside, D. K. Ferry, T. D. Mishima, M. B. Santos, and **I. R. Sellers**, Proceedings of 46th IEEE PVSC, Chicago IL, U. S. A.
- “Potential of high stability perovskite solar cells for Low-Intensity-Low-Temperature (LILT) outer planetary missions,” C. R. Brown, G. E. Eperon, V. R. Whiteside, and **I. R. Sellers**, Materials Research Society (MRS), Spring Meeting, Phoenix AZ, U.S.A (2019)
- “An Investigation of flexible Cu(In,Ga)Se₂ solar cells under LILT for potential applications for outer planetary missions,” C. R. Brown, V. R. Whiteside, D. Poplavskyy, K. Hossain, M. S. Dhoubhadel, and **I. R. Sellers**, Space Photovoltaic Research & Technology Conference (SPRAT XXV), Cleveland OH, U.S.A. (2018)

- “Control of hot carriers in type-II quantum well solar cell absorbers,” H. Esmailpour, V. R. Whiteside, A. D. Bristow, M. B. Santos, **I. R. Sellers** *et al.*, *European Photovoltaic Solar Energy Conference (EU-PVSEC), Brussels, Belgium (2018)*
- “Investigation of GaInNAs and Cu(In, Ga)Se₂ solar cells for space applications,” C. R. Brown, V. R. Whiteside, B. Wang, T. Mou, K. Hossain, T. D. Golding, D. Poplavskyy, and **I. R. Sellers**, *UK Semiconductors Meeting, Sheffield, U.K. (2018)*
- “Control of hot carrier thermalization in type-II quantum wells: a route to practical hot carrier solar cells,” H. Esmailpour, V. R. Whiteside, H. P. Piyathilaka, S. Vijayaragunathan, B. Wang, K. P. Roberts, T. D. Mishima, M. P. Lumb, M. B. Santos, A. D. Bristow, and **I. R. Sellers**, *7th World Conference on Photovoltaic Energy Conversion (WCPEC-7/PVSC-45), Hawaii USA (2018) – Nominated for Best Student Oral*
- “An investigation of the Role of Recombination Processes in InAs/GaAs_{1-x}Sb_x Quantum Dot Solar Cells,” Y. Cheng, A. Meleco, A. J. Roeth, V. R. Whiteside, M. C. Debnath, M. B. Santos, T. D. Mishima, S. Hatch, H. Y. Liu, and **I. R. Sellers**, *44th IEEE Photovoltaics Specialists Conference, Washington D.C., USA (2017)*
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