

Curriculum Vitae

John F. O'Hara

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Oklahoma State University
Electrical & Computer Engineering
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Education

- 2003** Ph.D. in Electrical Engineering, Oklahoma State University, Stillwater, OK
Cumulative GPA 4.0/4.0
Dissertation: Experimental study of a quasi-optic synthetic phased-array terahertz imaging system.
Advisor: Prof. Daniel R. Grischkowsky
- 1998** B.S.E. in Electrical Engineering, University of Michigan, Ann Arbor, MI
Cumulative GPA 3.9/4.0, *summa cum laude*

Professional Experience

August 2017- present

Assistant Professor, Electrical & Computer Engineering (*Scopus H-Index: 31*)
Oklahoma State University

- Instructor for Advanced Engineering Electromagnetics, Microwave Engineering, Fiber Optic Communication Systems, Fundamentals of Electric Circuits, Experimental Methods I, Electromagnetic Theory
- Research in terahertz optoelectronics, metamaterials, electromagnetics, and wireless
 - Atmospheric terahertz communication channel characterization
 - Dynamic terahertz metamaterials
 - Dispersion management devices and theory
 - Wireless system design and testing
 - Electromagnetic device design (polarization control, modulators, lenses)
 - THz artificial materials, condensed matter physics, THz wireless, and THz electronics studies (Funded: NSF Major Research Instrumentation, \$603k)
- Research in Space Communications
 - Robust and high-data-rate hybrid rf/optical communication for lunar missions utilizing RF and optical communication links for upcoming lunar missions. (Funded: NASA EPSCOR: \$1.0M)
 - THz space electronics radiation hardening studies (Funded: AFOSR DURIP: \$117k)
- Research in Sensing and Measurement using Incoherent Visible Light
 - Gesture recognition
 - Non-contact heart and respiration rate monitoring (Funded: NSF CNS Core: \$140k)

- Glucose sensing
- Research in IoT (Internet of Things)
 - Oklahoma Rural Renewal Initiative delivering broadband to rural communities with TV Whitespace, co-PI: Seed Project 3, (OSU-VPR Tier 1, \$90k)
 - Livestock Monitoring using IoT LoRaWAN Technology (Aexonis, \$50k)
 - Soil moisture monitoring with UAVs and LoRaWAN (USGS, \$25k)
- Current Principal Research Advisor for 1 Masters and 3 Ph.D. students
- Past Principal Research Advisor for 2 Masters

January 2011-present

Founder & President Wavetech, LLC

- System Integration
 - Robotics – integrating Denso and Fanuc robots into manufacturing cells
 - Embedded – developing controls/interfaces for customer turn-key products
- Controls and Automation
 - Regularly serving the oil/gas industry
 - Local/remote process controls, man-machine interface, panel design, networking
 - Retrofitting, commissioning, and debugging of plant controls/hardware
- Consulting
 - Research and development on emerging technologies: electromagnetic materials, antennas, nondestructive evaluation, and terahertz
 - Terahertz/ultrafast optoelectronic laboratory design and recommendations
- Product Development
 - SBIR Phase 1 project for missile radome inspection
 - Light hardware and software products for terahertz laboratories
 - Currently completing development and marketing of IoT, wireless home appliance monitor, invented in-house

March 2011-July 2017

Adjunct Associate Professor, Electrical & Computer Engineering
Oklahoma State University

- Instructor for Microwave Engineering and Introduction to Electrical Science (4000 and 2000-level undergrad courses)
- Subcontractor for Los Alamos National Lab (LANL) in the design and theoretical description of nonlinear metamaterials
- Actively engaged in funding generation, through government research arms (NSF)

2006-2011

Technical Staff Member, Los Alamos National Laboratory (LANL)
Center for Integrated Nanotechnologies (MPA-CINT)

Projects

- Principal Investigator (PI) on internal LANL Directed Research project. Project was a theoretical and experimental study of nonlinear metamaterials from RF to optical – 3 year

duration, \$5M

- PI on one internal LANL Exploratory Research project involving energy-harvesting metamaterials at microwave frequencies – 3 year duration totaling \$2.4M
- PI on a Director of Central Intelligence Postdoc project involving metamaterial-based electromagnetic sources – 2 year duration, \$240k
- PI on a LANL Director's Funded Postdoctoral Fellowship (postdoc under my direct supervision) – 2 year duration, ~\$250k
- PI on one external research project involving terahertz and infrared metamaterials – 24 month duration totaling \$414k
- Metamaterial lead researcher and proposal author on an external research project with DARPA on tuning the Casimir force with metamaterials – 2 year duration, \$1.8M
- PI on LANL Exploratory Research project involving terahertz metamaterials – 3 year duration, \$1.1M
- PI on external research project involving the development of a compact terahertz time-domain spectroscopy system, ~\$370k
- Numerous side research projects in ultrafast semiconductor materials: MBE grown GaAs, ErAs, and TbAs composites. These were used to create high-performance THz devices.

Leadership

- Directly oversaw and managed staff and postdocs on large research teams from various divisions (LANL)
- Managed several ultrafast labs in terms of operations, safety, security, and environmental responsibility (LANL)
- Managed program development with external agencies (LANL)
- Managed intellectual property within research group (LANL and Wavetech)
- Hosted and co-hosted numerous postdoctoral researchers
- Served as technical point of contact for LANL/University sub-contracting.
- Held numerous clearances and helped manage information security.

2003-2005

Director of Central Intelligence (DCI) Postdoctoral Fellow, LANL

Center for Integrated Nanotechnologies (MPA-CINT)

Formerly with MST-10, Condensed Matter and Thermal Physics

- High efficiency THz photoconductive detectors based on self-assembled ErAs nano-island superlattices
- THz surface plasmon propagation and coupling studies
- THz spectroscopy and characterization studies on a variety of materials: metamaterials, nanoscale systems (wires, superlattices), organic systems, ultrafast materials, energetic materials
- THz ranging/imaging studies through highly scattering media

1999-2003

Research Assistant
 School of Electrical and Computer Engineering
 Oklahoma State University, Stillwater, OK.

- Developed, implemented, and modeled a quasi-optic, synthetic phased-array THz imaging system
- Developed general optoelectronic THz systems, spectroscopy, ranging, and waveguide systems.
- Studied THz wavefront analysis via hybrid geometric and diffractive optics methods

1998-1999

System Engineer,
 Motorola SSG, Inc. Scottsdale, AZ

- Performed debugging and space-qualifying experiments on Deep Space Transponder components and system test equipment
- Performed system test procedures for MARS01/SIRTF mission flight transponders

Experimental and Technical Skills

- Extensive laboratory experience including design, fabrication, and maintenance of multiple systems involving CW, pulsed, and amplified lasers, THz and optoelectronics, optical pump-probe, fiber-optics, spectroscopy, microwave systems, scattering/ranging.
- Extensive data analysis and theoretical modeling experience, particularly concentrated on THz and time-domain spectroscopy.
- Extensive expertise in design and fabrication of complex systems involving electronics, vacuum, cryogenics, pneumatic, mechanical, and controls (software interfacing).
- Expertise in multiple computing platforms and languages: C, C++, Objective C, Java, Matlab, LabView, SCADA, ladder logic, Fortran, COMSOL, Microwave Studio.
- Extensive product development experience, particularly in IoT and embedded devices.

Professional Activities

Reviewer

- Optics Express
- Optics Letters
- Applied Physics Letters
- Applied Optics
- Optics Communications
- IEEE – JSTQE, AWPL
- J. of Lightwave Tech

- Intl. J. Infrared Millim. Waves
- Nature Scientific Reports
- Advanced Materials
- Chinese Optics Letters
- Lightwave Science and Technology
- APL Photonics

Memberships

- Senior Member - (IEEE)

Service

- SPIE Defense + Commercial Sensing, Next Generation Spectroscopic Technologies XIV: Program Chair, 2021.
- SPIE Defense + Commercial Sensing, Next Generation Spectroscopic Technologies XIII: Program Committee, 2020.
- Organizer of Intl. Workshop on Electromagnetic Metamaterials III and IV – a joint Los Alamos and Sandia hosted workshop.

Journal Publications

* Indicates graduate student participant

62. Li Yu*, Hisham Abuella*, **John F. O'Hara**, C. Crick, and Sabit Ekin, "Gesture Recognition using Reflected Visible and Infrared Light Wave Signals," in IEEE Transactions on Human-Machine Systems **51**(1) (*to be published in 2021*). <https://doi.org/10.1109/THMS.2020.3043302>
61. Sabit Ekin, **John F. O'Hara**, Emrah Turgut, Nicole Colston, and Jeffrey L. Young, "A Do-It-Yourself (DIY) Light Wave Sensing and Communication Project: Low-Cost, Portable, Effective, and Fun," IEEE Transactions on Education, (*accepted for publication 21 Oct 2020*). <https://doi.org/10.1109/TE.2020.3029543>
60. Ana M. Chicas-Mosier*, Medhat Radi, Jack Lafferrandre, **John F. O'Hara**, Hitesh D. Vora, and Charles I. Abramson, "Low Strength Magnetic Fields Serve as a Cue for Foraging Honey Bees but Prior Experience is More Indicative of Choice," Bioelectromagnetics **41**(6), 458-470 (2020). <https://doi.org/10.1002/bem.22285>
59. Daqing Piao, **John F. O'Hara**, Satish Bukkapatnam, and Sabit Ekin, "Towards Non-Contact Glucose Sensing in Aqueous Turbid Medium at ~1.1 Meters Distance," IEEE Photonics Journal, **12**(4), 3700523 (2020). <https://doi.org/10.1109/JPHOT.2020.3013202>
58. K. Strecker*, S. Ekin, and **John F. O'Hara**, "Compensating atmospheric channel dispersion for terahertz wireless communication," Scientific Reports **10**, 1-8 (2020). <https://doi.org/10.1038/s41598-020-62692-7>
57. Linlin Dai, Yuping Zhang, Huiyun Zhang, and **John F. O'Hara**, "Controllable broadband asymmetric transmission of terahertz wave based on Dirac semimetals," Optics Express **27**(24), 35784-35796 (2019). <https://doi.org/10.1364/OE.27.035784>
56. Gyeong-Ryul Kim, Kiwon Moon, Kyung Hyun Park, **John F. O'Hara**, D. Grischkowsky, and Tae-In Jeon "Remote N₂O gas sensing by enhanced 910-m propagation of THz pulses," Optics Express **27**(20), 27514-27522 (2019). <https://doi.org/10.1364/OE.27.027514>.
55. **John F. O'Hara**, Sabit Ekin, Wooyeol Choi, and Ickhyun Song, "A Perspective on Terahertz Next-Generation Wireless Communications," Technologies **7**(2), 43 (2019). <https://doi.org/10.3390/technologies7020043>

54. Linlin Dai, Yuping Zhang, Huiyun Zhang, and **John F. O'Hara**, "Broadband tunable terahertz cross-polarization converter based on Dirac semimetals," *Appl. Phys. Express.* **12**, 075003 (2019).
53. **John F. O'Hara** and D. Grischkowsky, "Comment on the veracity of the ITU-R recommendation for atmospheric attenuation at terahertz frequencies," *IEEE T. Terahz Sci. Tech.* **8**(3) 372-375 (2018).
52. Ç. Ö. Topal, H. M. Jaradat, S. Karumuri, **John F. O'Hara**, A. Akyurtlu, and A. K. Kalkan, "Plasmon resonances in nanohemisphere monolayers," *J. Phys. Chem. C* **212**(42), 23599-23608 (2017).
51. Qing Yu, Jianqiang Gu, Quanlong Yang, Ying Zhang, Yanfeng Li, Zhen Tian, Chunmei Ouyang, Jiaguang Han, **John F. O'Hara**, and Weili Zhang, "All-dielectric meta-lens designed for photoconductive terahertz antennas," *IEEE Photonics Journal* **9**(4), 5900609-1-9 (2017).
50. Yuping Zhang, Tongtong Li, Qi Chen, Huiyun Zhang, **John F. O'Hara**, Ethan Abele, Antoinette J. Taylor, Hou-Tong Chen, and Abul K. Azad, "Independently tunable dual-band perfect absorber based on graphene at mid-infrared frequencies," *Scientific Reports* **5**, 18463-1-8 (2015).
49. X. Su, C. Ouyang, N. Xu, W. Cao, X. Wei, G. Song, J. Gu, Z. Tian, **John F. O'Hara**, J. Han, and W. Zhang, "Active metasurface terahertz deflector with phase discontinuities," *Opt. Express* **23**(21), 27152-27158 (2015).
48. D. Roy Chowdhury, **John F. O'Hara**, A. J. Taylor and A. K. Azad, "Orthogonally twisted planar concentric split ring resonators towards strong near field coupled terahertz metamaterials," *Appl. Phys. Lett.* **104**, 101105 (2014).
47. W. Withayachumnankul, **John F. O'Hara**, W. Cao, I. Al-Naib, and W. Zhang, "Limitation in thin-film sensing with transmission-mode terahertz time-domain spectroscopy," *Opt. Express* **22**(1), 972-985 (2014).
46. S. Ramani, M. T. Reiten, P. L. Colestock, A. J. Taylor, A. K. Azad, and **John F. O'Hara**, "Electromagnetic response of finite metafilm arrays excited on total internal reflection boundaries," *IEEE Trans. Terahz. Sci. Tech.* **3**(6), 709-720 (2013). (*Invited article in Special Issue*)
45. **John F. O'Hara**, P. L. Colestock, and A. K. Azad, "A partial-element analysis method for determining resonator coupling in terahertz metamaterials," *Terahertz Science and Technology* **6**, 95 (2013). (*Invited*)
44. Wei Cao, C. Song, T. E. Lanier, R. Singh, **John F. O'Hara**, W. M. Dennis, Y. Zhao, and W. Zhang, "Tailoring terahertz plasmons with silver nanorod arrays," *Scientific Reports* **3**,

- 1766 (2013).
43. D. Yu. Shchegolkov, M. T. Reiten, **John F. O'Hara**, and A. K. Azad, "Direct observation of electro-optic modulation in a single split-ring resonator," *Appl. Phys. Lett.* **102**, 091109 (2013).
 42. A. Azad, **John F. O'Hara**, R. Singh, H.T. Chen, and A. J. Taylor, "A Review of Terahertz Plasmonics in Subwavelength Holes on Conducting Films," *IEEE J. of Sel. Topics Quantum Electronics* **19**, 8400416 (2013). (*Invited Review Article*)
 41. P. Colestock, M. T. Reiten, and **John F. O'Hara**, "Modeling active and passive nonlinear metamaterials," *Metamaterials* **6**, 8-26 (2012).
 40. J. Zhou, D. Roy Chowdhury, R. Zhao, A. K. Azad, H.T. Chen, C. M. Soukoulis, A. J. Taylor, and **John F. O'Hara**, "Terahertz chiral metamaterials with giant and dynamically tunable optical activity," *Phys. Rev. B* **86**, 035448 (2012).
 39. Q. Li, X. Zhang, W. Cao, A. Lakhtakia, **John F. O'Hara**, J. Han, and W. Zhang, "An approach for mechanically-tunable, dynamic terahertz bandstop filters," *Appl. Phys. A: Mat. Sci. and Process.* **107**(2), 285 (2012).
 38. C. L. Holloway, E. F. Kuester, J. A. Gordon, **John F. O'Hara**, J. Booth, and D. R. Smith, "An overview of the theory and applications of metasurfaces: the two-dimensional equivalents of metamaterials," *IEEE Ant. Prop. Mag.* **54**(2), 10 (2012).
 37. **John F. O'Hara**, W. Withayachumnankul, and I. Al-Naib, "A Review on Thin-Film Sensing with Terahertz Waves," *J. Infrared Millim. Terahz. Waves* **33**(3), 245-291 (2012). (*Invited Review Article*)
 36. Y. Zeng, D. A. R. Dalvit, **John F. O'Hara**, and S. A. Trugman, "Modal analysis method to describe weak nonlinear effects in metamaterials," *Phys. Rev. B* **85**, 125107-1-9 (2012).
 35. J. Gu, R. Singh, A. K. Azad, J. Han, A. J. Taylor, **John F. O'Hara**, and W. Zhang, "An active hybrid plasmonic metamaterial," *Opt. Mat. Express* **2**, 31 (2012).
 34. D. Roy Chowdhury, R. Singh, **John F. O'Hara**, A. J. Taylor, and A. K. Azad "Dynamically reconfigurable terahertz metamaterial through photo-doped semiconductor," *Appl. Phys. Lett.* **99**, 231101 (2011).
 33. V. Whitley, D. E. Hooks, K. J. Ramos, T. H. Pierce, **John F. O'Hara**, A. K. Azad, A. J. Taylor, J. Barber, and R. D. Averitt, "Orientation dependent far-infrared terahertz absorptions in single crystal pentaerythritol (PETN) using terahertz time-domain spectroscopy," *J. Phys. Chem. A* **115**(4), 439-442 (2011).
 32. D. Roy Chowdhury, R. Singh, M. Reiten, H.-T. Chen, A. J. Taylor, **John F. O'Hara**, and A. K. Azad, "A broadband planar terahertz metamaterial with nested structure," *Opt.*

- Express **19**(17), 15817 (2011).
31. H.-T. Chen, **John F. O'Hara**, A. K. Azad, and A. J. Taylor, "Manipulation of terahertz radiation using metamaterials," *Laser & Photonic Reviews* **5**(4), 513 (2011). (*Invited Review Article*)
 30. D. Roy Chowdhury, R. Singh, M. Reiten, J. Zhou, A. Taylor, and **John F. O'Hara**, "Tailored resonator coupling for modifying the terahertz metamaterial response," *Opt. Express* **19**, 10679 (2011).
 29. M. T. Reiten, D. Roy Chowdhury, J. Zhou, **John F. O'Hara**, and A. K. Azad, "Resonance tuning behavior in closely spaced inhomogeneous bilayer metamaterials," *Appl. Phys. Lett.* **98**, 131105 (2011).
 28. Z. Tian, A. K. Azad, X. Lu, J. Gu, J. Han, Q. Xing, A. J. Taylor, **John F. O'Hara**, and W. Zhang, "Large dynamic resonance transition between surface Plasmon and localized surface Plasmon modes," *Opt. Express* **18**, 12482 (2010).
 27. D. Yu Shchegolkov, A. Azad, **John F. O'Hara**, and E. Smirnova, "Perfect sub-wavelength fishnet-like metafilm THz absorbers," *Phys. Rev. B* **82**, 205117 (2010).
 26. H.-T. Chen, H. Yang, R. Singh, **John F. O'Hara**, A. K. Azad, S. Trugman, Q. X. Jia, and A. J. Taylor, "Tuning the resonance in high temperature superconducting terahertz metamaterials," *Phys. Rev. Lett.* **105**, 247402 (2010).
 25. H.-T. Chen, J. Zhou, **John F. O'Hara**, F. Chen, A. K. Azad, and A. J. Taylor, "Antireflection coating using metamaterials and identification of its mechanism," *Phys. Rev. Lett.* **105**, 073901 (2010).
 24. **John O'Hara**, A. K. Azad, and A. J. Taylor, "A method to determine effective metamaterial properties based on stratified metafilms," *Eur. Phys. J. D* **58**, 243 (2010).
 23. A. K. Azad, H.-T. Chen, S. R. Kasarla, A. J. Taylor, Z. Tian, X. Lu, W. Zhang, H. Lu, A. C. Gossard, and **John F. O'Hara**, "Ultrafast optical control of terahertz surface plasmon polaritons in subwavelength hole arrays at room temperature," *Appl. Phys. Lett.* **95**, 011105 (2009).
 22. X. G. Peralta, M. C. Wanke, C. L. Arrington, J. D. Williams, I. Brener, A. Strikwerda, R. D. Averitt, W. J. Padilla, E. Smirnova, A. J. Taylor, and **John F. O'Hara**, "Large-area metamaterials on thin membranes for multilayer and curved applications at terahertz and higher frequencies," *Appl. Phys. Lett.* **94**, 161113 (2009).
 21. V. H. Whitley, D. E. Hooks, K. J. Ramos, **John F. O'Hara**, A. K. Azad, A. J. Taylor, J. Barber, and R. D. Averitt, "Polarization orientation dependence of the far infrared spectra of oriented single crystals of 1,3,5-trinitro-s-triazine (RDX) using terahertz time-domain spectroscopy," *Anal. Bioanal. Chem.* **395**, 315 (2009).

20. C. Holloway, A. Dienstfrey, E. F. Kuester, **John F. O'Hara**, A. K. Azad, and A. J. Taylor, "A discussion on the interpretation and characterization of metafilms/metasurfaces: The two-dimensional equivalent of metamaterials," *Metamaterials* **3**, 110 (2009).
19. A. K. Azad, H.-T. Chen, X. Lu, J. Gu, N. R. Weisse-Bernstein, E. Akhadov, A. J. Taylor, W. Zhang, and **John F. O'Hara**, "Flexible quasi-three-dimensional terahertz electric metamaterials," *Terahertz Sci. Tech.* **2**, 15 (2009).
18. X. G. Peralta, E. Smirnova, A. K. Azad, H.-T. Chen, A. J. Taylor, I. Brener, and **John F. O'Hara**, "Metamaterials for THz polarimetric devices," *Opt. Express* **17**, 773 (2009).
17. H.-T. Chen, H. Lu, A. K. Azad, R. D. Averitt, A. C. Gossard, S. A. Trugman, **John F. O'Hara**, and A. J. Taylor, "Electronic control of extraordinary terahertz transmission through subwavelength metal hole arrays," *Opt. Express* **16**, 7841 (2008).
16. A. K. Azad R. P. Prasankumar, D. Talbayev, A. J. Taylor, R. D. Averitt, J. M. O. Zide, H. Lu, A. Gossard, and **John F. O'Hara**, "Carrier dynamics in InGaAs with embedded ErAs nanoislands," *Appl. Phys. Lett.* **93**, 121108 (2008).
15. R. Singh, A.K. Azad, **John F. O'Hara**, A.J. Taylor, and W. Zhang, "Effect of metal permittivity on resonant properties of terahertz metamaterials," *Opt. Lett.* **33**, 1506 (2008).
14. R. Singh, E. Smirnova, A.J. Taylor, **John F. O'Hara**, and W. Zhang, "Optically thin terahertz metamaterials," *Opt. Express* **16**, 6537 (2008).
13. H.-T. Chen, S. Palit, T. Tyler, C. M. Bingham, J. M. O. Zide, **John F. O'Hara**, D. R. Smith, A. C. Gossard, R. D. Averitt, W. J. Padilla, N. M. Jokerst, and A. J. Taylor, "Hybrid metamaterials enable fast electrical modulation of freely propagating terahertz waves," *Appl. Phys. Lett.* **93**, 091117 (2008).
12. **John F. O'Hara**, R. Singh, I. Brener, E. Smirnova, J. Han, A. J. Taylor, and W. Zhang, "Thin-film sensing with planar terahertz metamaterials: sensitivity and limitations," *Opt. Express* **16**, 1786 (2008).
11. H.-T. Chen, **John F. O'Hara**, A.K. Azad, A.J. Taylor, R.D. Averitt, D.B. Shrekenhamer, and W.J. Padilla, "Experimental demonstration of frequency-agile terahertz metamaterials," *Nat. Photonics* **2**, 295 (2008).
10. A. K. Azad, A. J. Taylor, E. Smirnova, and **John F. O'Hara**, "Characterization and analysis of terahertz metamaterials based on rectangular split-ring resonators," *Appl. Phys. Lett.* **92**, 011119 (2008).
9. **John F. O'Hara**, E. Smirnova, A. K. Azad, H.-T. Chen, and A. J. Taylor, "Effects of microstructure variations on macroscopic terahertz metafilm properties," *Active and Passive Electronic Components* **2007**, 49691 (2007).

8. H.-T. Chen, **John F. O'Hara**, A. J. Taylor, R. D. Averitt, C. Highstrete, M. Lee, and W. J. Padilla, "Complementary planar terahertz metamaterials," *Opt. Exp.* **15**, 1084 (2007)
7. **John F. O'Hara**, E. Smirnova, H.-T. Chen, A. J. Taylor, R. D. Averitt, C. Highstrete, M. Lee, and W. J. Padilla, "Properties of Planar Electric Metamaterials for Novel TeraHertz Applications," *J. Nanoelectron. Optoelectron.* **2**, 90 (2007).
6. **John F. O'Hara**, J.M.O. Zide, A.C. Gossard, A.J. Taylor, and R.D. Averitt, "Enhanced terahertz detection via ErAs:GaAs nanoisland superlattices," *Appl. Phys. Lett.* **88**, 251119 (2006).
5. **John F. O'Hara**, R.D. Averitt, A.J. Taylor, "Prism coupling to terahertz surface plasmon polaritons," *Opt. Express* **13**, 6117-6126 (2005).
4. **John F. O'Hara**, R. D. Averitt, and A. J. Taylor, "Terahertz surface plasmon polariton coupling on metallic gratings," *Opt. Express* **12**, 6397-6402 (2004).
3. **John O'Hara** and D. Grischkowsky, "Quasi-optic synthetic phased-array terahertz imaging," *J. Opt. Soc. Am. B* **21**, 1178-1191 (2004).
2. **John O'Hara** and D. Grischkowsky, "Synthetic phased-array terahertz imaging," *Opt. Lett.* **27**, 1070-1072 (2002).
1. **J. O'Hara** and D. Grischkowsky, "Quasi-optic terahertz imaging," *Opt. Lett.* **26**, 1918-1920 (2001).

Peer-Reviewed Conference Papers

- §10. Karl L. Strecker*, Sabit Ekin, and **John F. O'Hara**, "Correction of channel dispersion in terahertz wireless communications," *Proc. SPIE* **111390**, 113900N-1-10 (2020).
- §9. **John F. O'Hara** and Daniel R. Grischkowsky, "Terahertz atmospheric propagation studies in support of wireless remote sensing," *Proc. SPIE* **10657**, 106570W-1-7 (2018).
8. Patrick L. Colestock, Matthew T. Reiten, and **John F. O'Hara**, "Modeling of Nonlinear Metamaterials," *Proc. SPIE* **8093**, 809327-1-8 (2011).
7. **John F. O'Hara**, M. T. Reiten, P. Colestock, L. Earley, and A. J. Taylor, "Tunnel-diode loaded split-ring resonators as a foundation for nonlinear metamaterials," *Proc. SPIE* **8093**, 809304-1-10 (2011). (*Invited*)
6. Abul K. Azad, Hou-Tong Chen, Antoinette J. Taylor, Weili Zhang, and **John F. O'Hara**, "Ultrafast Optical Control of Terahertz Surface Plasmons in Subwavelength Hole-Arrays at

- Room Temperature,” Proc. SPIE **7937**, 79370B-1-10 (2011). (*Invited*)
5. Xomalin G. Peralta, Michael C. Wanke, Igal Brener, Jerry Waldman, William D. Goodhue, J. Li, Abul K. Azad, Hou-Tong Chen, Antoinette J. Taylor, and **John F. O'Hara**, “Metamaterial devices for terahertz imaging,” Proc. SPIE **7562**, 75620I-1-7 (2010).
 4. Abul K. Azad, Hou-Tong Chen, Antoinette J. Taylor, **John F. O'Hara**, Jianguang Han, Xinchao Lu, and Weili Zhang, “Terahertz spectroscopy of two-dimensional subwavelength plasmonic structures,” Proc. SPIE **7214**, 72140Z-1-15 (2009). (*Invited*)
 3. Hou-Tong Chen, **John F. O'Hara**, Abul K. Azad, Willie J. Padilla, Richard D. Averitt, and Antoinette J. Taylor, “Terahertz Metamaterials,” Proc. SPIE **7214**, 721417-1-13 (2009). (*Invited*)
 2. Nathan I. Landy, Hou-Tong Chen, **John F. O'Hara**, Joshua M. O. Zide, Arthur C. Gossard, Clark Highstrete, Mark Lee, Antoinette J. Taylor, Richard D. Averitt, and Willie J. Padilla, “Terahertz metamaterials for active, tunable, and dynamical devices,” Proc. SPIE **6581**, 65810P-1-8 (2007). (*Invited*)
 1. R. Alan Cheville, Matthew T. Reiten, **John O'Hara**, Daniel R. Grischkowsky, “THz Time Domain Sensing and Imaging,” Proc. SPIE **5411**, 196-206 (2004). (*Invited*)

Patents

3. **John F. O'Hara** and Ethan J. Abele, U.S. Patent 10,423,143, “Aerobic septic system health monitor and maintenance device, system, and method of its use,” (Sept. 24, 2019).
2. **John F. O'Hara**, Richard D. Averitt, Willie Padilla, Hou-Tong Chen, U.S. Patent 8,836,439, “Dynamic frequency tuning of electric and magnetic metamaterial response,” (Sept. 16, 2014).
1. Hou-Tong Chen, Willie John Padilla, Richard Douglas Averitt, **John F. O'Hara**, and Mark Lee, U.S. Patent 7,826,504, “Active terahertz metamaterial devices.” (Nov. 2, 2010).

Applications or Provisionals

- §2. Sabit Ekin, Daqing Piao, and John F. O'Hara, US Patent App. No. US 63/053,004 “System and Method of Non-Contact Glucose Sensing,” (July 7, 2020).
- §1. John F. O'Hara and Karl L. Strecker*, U.S. Provisional Patent 62/898,358 “Method and implementation of dispersion compensation in terahertz wireless signals,” (Sept. 10, 2019).

Honors

- Senior Membership to Institute of Electrical and Electronics Engineers (IEEE), 2019.
- Oklahoma State University, College of Engineering, Architecture, and Technology Faculty Diversity and Inclusion Faculty/Staff of the Year Award 2018.
- PI and mentor on LANL summer student project. “High-speed broadband THz amplitude modulator”. Student Frank Chen received poster award and distinguished student award (only 4 given per year), 2010.
- **Edward E. Altshuler Prize Paper Award** (2013) Awarded for best contribution published in IEEE Antennas and Propagation Magazine during the previous year.

- Invited talks
 - SPIE-Defense + Commercial Sensing 2021, (online) – April 2021
 - SPIE-Defense + Commercial Sensing 2020, (online) – April 2020
 - SPIE-Defense + Commercial Sensing 2018, Orlando FL – April 2018
 - Physics Department Colloquium, Oklahoma State University – Feb. 16, 2012
 - SPIE Optics and Photonics Conference, Metamaterials: Fundamentals and Applications IV –Aug. 21-25, 2011
 - Physics Department Colloquium, University of Oklahoma – Feb. 18, 2011
 - 4th Intl. Congress on Advanced Electromagnetic Materials in Microwaves and Optics (Conference) – Sept. 13-16, 2010 – Karlsruhe, Germany
 - International Workshop on Electromagnetic Metamaterials II and IV – Aug 12, 2010 and Sept. 5, 2007 – Los Alamos, NM and Santa Ana Pueblo, NM
 - 4th Intl. Rio de la Plata Workshop on Laser Dynamics and Nonlinear Photonics – Dec. 8-11, 2009 – Piriapolis, Uruguay
 - Colloquium at Physical Sciences Lab – October 21, 2009 – College Park, MD
 - Optical Metamaterials Applications: Challenges and Opportunities, AFRL Workshop – Oct. 9, 2009 – Dayton, OH
 - New Frontiers in Casimir Force Control – Sept. 26-28, 2009, Santa Fe, NM
 - Workshop on Spatial Dispersion in Metamaterials, Transformation Optics, and Related Topics – May 28, 2008 – Duke University, Durham, NC
 - Physics Department hosted talks, University of California, Santa Barbara – May 17, 2007 – Santa Barbara, CA
 - IC Postdoctoral Research Fellowship Colloquium – May 2, 2007 – Chantilly, VA
- Director of Central Intelligence Postdoctoral Research Fellowship (award value ~\$240,000)
- Member Eta Kappa Nu, Electrical Engineering Honor Fraternity
- Member Tau Beta Pi, Engineering Honor Fraternity
- James B. Angell Scholar, University of Michigan, (1995, 1997).
- Dean’s Honor List, University of Michigan, (1994-1998).