

## Curriculum Vitae

**Jie Huang, Ph.D.**

**Roy E. Wilkens Endowed Associate Professor**  
Director of Lightwave Technology Laboratory  
Department of Electrical and Computer Engineering  
Missouri University of Science and Technology  
301 W. 16<sup>th</sup> Street, Rolla, MO 65409-0040  
Phone: 573-341-4836, Email: [jieh@mst.edu](mailto:jieh@mst.edu)

## EDUCATION

**Ph.D.**, Electrical Engineering, 2015, Clemson University, Clemson, SC 29630.

**M.S.**, Electrical Engineering, 2012, Missouri University of Science and Technology, Rolla, MO 65409

**B.S.**, Precision Instrument and Optoelectronics Engineering, 2009, Tianjin University, Tianjin, 300072, China

## PROFESSIONAL EXPERIENCE

**2021-Present:** Roy E. Wilkens Endowed Associate Professor, Department of Electrical and Computer Engineering, Missouri University of Science and Technology, Rolla, MO 65409

**2017-Present:** Faculty Research Investigator, Kent D. Peaslee Steel Manufacturing Research Center (PSMRC), Missouri University of Science and Technology, Rolla, MO 65409

**2016-Present:** Research Investigator, Materials Research Center (MRC), Missouri University of Science and Technology, Rolla, MO 65409

**2016-Present:** Research Investigator, Intelligent Systems Center (ISC), Missouri University of Science and Technology, Rolla, MO 65409

**2016-Present:** Faculty Research Investigator, Center for Biochemical Research (CBR), Missouri University of Science and Technology, Rolla, MO 65409

**2015-Present:** Director, Lightwave Technology Laboratory, Missouri University of Science and Technology, Rolla, MO 65409

**2015-Present:** Assistant Professor, Department of Electrical and Computer Engineering, Missouri University of Science and Technology, Rolla, MO 65409

**2013-2015:** Graduate Research Assistant, Department of Electrical and Computer Engineering, Clemson University, Clemson, SC 29630

**2010-2013:** Graduate Research Assistant, Department of Electrical and Computer Engineering, Missouri University of Science and Technology, Rolla, MO 65409

## HONORS AND AWARDS

**2021:** Roy E. Wilkens Endowed Professorship

**2020:** Gentec-EO Laser Lab Award

**2019:** IEEE Saint Louis Section Outstanding Researcher

**2019:** Faculty Excellence Award at Missouri S&T

**2019:** Research Momentum Award at Missouri S&T

**2019:** Keynote Speech: Fiber Optic Sensors for Industrial Applications, IEEE St. Louis Section

**2017:** University of Missouri Faculty Scholar

- 2016:** Best Paper Award, ASME Smart Materials, Adaptive Structures, and Intelligent Systems
- 2016:** Keynote Speech: Fiber Optic Sensors, PSMRC annual meeting, Missouri S&T
- 2015:** 2nd place at the poster competition, Materials and Optics, Clemson University
- 2014:** 3rd place at the poster competition, CCOMC Conference, Anderson, SC
- 2013:** Professional enrichment grant at Clemson University
- 2012:** IEEE Instrumentation & Measurement Society Graduate Fellowship Award
- 2012:** Council of Graduate Students Travel Grant at Missouri S&T
- 2008:** Outstanding Student Leadership Award at Tianjin University

## HONORS AND AWARDS FOR MENTORED STUDENTS

- 2022:** *Peter Holtmann*: 2<sup>nd</sup> place for oral presentation at the 2022 IEEE St. Louis Section student presentations (M.S. category)
- 2022:** *Muhammad Roman*: 3<sup>rd</sup> place for oral presentation at the 2022 IEEE St. Louis Section student presentations (Ph.D. category)
- 2021:** *Muhammad Roman*: 3<sup>rd</sup> place for Graduate Student Poster Contest at the Iron & Steel Technology Conference and Exposition (Nashville, TN)
- 2021:** *Peter Holtmann*: 2<sup>nd</sup> place for oral presentation at the 2021 Undergraduate Research Conference at Missouri S&T
- 2021:** *Bohong Zhang*: CEC Dean's Graduate Educator Award, Missouri S&T
- 2021:** *Peter Holtmann*: 1<sup>st</sup> place for oral presentation at the 2021 IEEE St. Louis Section student presentations (B.S. category)
- 2021:** *Muhammad Roman*: 2<sup>nd</sup> place for oral presentation at the IEEE St. Louis Section student presentations (Ph.D. category)
- 2021:** *Bohong Zhang*: 2<sup>nd</sup> place for oral presentation at the IEEE St. Louis Section student presentations (M.S. category)
- 2021:** *Chen Zhu*: IEEE St. Louis Section Outstanding IEEE Graduate Student
- 2020:** *Yiyang Zhuang*: CEC Dean's Ph.D. Scholar Award, Missouri S&T
- 2020:** *Chen Zhu*: Incubic/Milton Chang Travel Grant, Optical Society of America
- 2019:** *Chen Zhu*: CEC Dean's Ph.D. Scholar Award, Missouri S&T
- 2019:** *Muhammad Roman*: 1<sup>st</sup> place in ISC Research Poster presentation, Missouri S&T
- 2019:** *Matthew Parker*: 1<sup>st</sup> place for oral presentation at the 51st Southeastern Undergrad Research Conference (high school student)
- 2018:** *Chen Zhu*: IEEE Instrumentation and Measurement Society Graduate Fellowship Award
- 2016:** *Julia White*: Presented research projects to the state's top legislators
- 2016:** *Amir Ghazanfari*: Best student paper award at the ASME SMASIS Conference (co-authored with Dr. Ming C. Leu)

## TEACHING

### SUMMARY OF TEACHING EVALUATIONS

Terms	Course title	Level	Response/ Enrollment	Evaluation	New?
FS15	EE3420: Communication Systems	Senior	9/13	3.33/4.0	No
SP16	EE3600: Electromagnetics (Local)	Junior	17/26	3.29/4.0	No
SP16	EE3600: Electromagnetics (Distance)	Junior	18/22	2.78/4.0	No
FS16	EE3600: Electromagnetics	Junior	26/36	3.08/4.0	No
SP17	EE3600: Electromagnetics (Local)	Junior	21/38	3.24/4.0	No
SP17	EE3600: Electromagnetics (Distance)	Junior	7/16	3.29/4.0	No
FS17	EE3600: Electromagnetics	Junior	29/35	2.83/4.0	No
SP18	EE6001: Introduction to Nonlinear Optics	MS/PhD	13/16	3.87/4.0	Yes
FS18	EE6200: Electromagnetic Optics	MS/PhD	11/12	3.91/4.0	No
FS19	EE3600: Electromagnetics	Junior	11/32	3.27/4.0	No
SP20	EE3600: Electromagnetics	Junior	9/28	3.22/4.0	No
SP21	EE3600: Electromagnetics	Junior	21/50	3.20/4.0	No
FS21	EE5630: Wave Prop & Transmission Lines	MS/PhD	/38		No

## RESEARCH

### CURRENT RESEARCH THRUST AREAS

1. Fiber optic sensors
2. Novel photonic/microwave micro/nano materials, structures, devices and sensors
3. Ultrafast laser machining, processing, and characterization of micro/nano structures, materials and devices
4. Sensors and instrumentation for applications in harsh environments
5. Optical biomedical imaging and sensing

### EXTERNAL RESEARCH GRANTS (09/2015 – 11/2020)

**Total external research funds with matching: \$17,214,109**

**Total external research funds without matching: \$14,138,638**

**Huang's share with matching: \$8,219,082**

**Huang's share without matching: \$7,200,496**

### External Funding Details (09/2015 – 09/2021)

Amount	Huang credit	Agency	Dates	Topic	Application	Status
\$16,000	\$16,000	Innovation	02/16 – 08/16	RF Sensor	Medical Health	Completed

\$47,336	\$47,336	UMRB	08/16 – 06/18	Optical Sensor	Harsh Environment	Completed
\$120,000	\$120,000	Industry	06/17 – 05/19	RF Sensor	Structural Health	Completed
\$2,443	\$2,443	Industry	02/17 – 09/17	Optical Sensor	Harsh Environment	Completed
\$16,000	\$9,600	OBI	01/18 – 12/18	RF Sensor	Medical Health	Completed
\$64,086	\$64,086	Industry	09/18 – 08/19	RF Sensor	Structural Health	Completed
\$330,000	\$99,000	PSMRC	07/18 – 07/21	Optical Sensor	Harsh Environment	Completed
\$31,050	\$31,050	Industry	06/18 – 05/19	RF Sensor	Structural Health	Completed
\$60,000	\$60,000	Industry	02/18 – 01/19	RF Sensor	Structural Health	Completed
\$75,000	\$60,000	Industry	06/18 – 06/19	Optical Sensor	Medical Health	Completed
\$390,000	\$234,000	PSMRC	07/19 – 07/22	Optical Sensor	Harsh Environment	In Progress
\$240,000	\$96,000	AISI	07/20 – 06/23	Optical Sensor	Harsh Environment	In Progress
\$15,000	\$15,000	IEEE	10/18 – 09/19	Optical Sensor	Structural Health	In Progress
\$64,560	\$64,560	LANL	07/19 – 03/20	Optical Sensor	Structural Health	Completed
\$120,950	\$54,427	DOE	07/19 – 12/20	Optical Sensor	Structural Health	In Progress
\$311,473	\$139,264	DOE	07/19 – 12/20	Optical Sensor	Harsh Environment	In Progress
\$516,000	\$103,200	NSF	09/19 – 08/22	Optical Sensor	Structural Health	In Progress
\$75,145	\$22,544	LANL	03/19 – 10/21	Optical Sensor	Structural Health	In Progress
\$2,462,302	\$1,969,841	ARL/LWI	12/18 – 09/20	Optical Sensor	Medical Health	In Progress
\$242,172	\$79,916	AFOSR	07/20 – 06/21	Optical Sensor	Harsh Environment	In Progress
\$2,303,893	\$921,557	DOE	07/20 – 06/23	Optical Sensor	Harsh Environment	In Progress
\$200,000	\$150,000	NSF	06/20 – 05/21	RF Sensor	Medical Health	In Progress
\$363,091	\$363,091	NIH	09/20 – 08/21	RF Sensor	Medical Health	In Progress
\$712,849	\$570,279	NIH	01/21 – 01/23	RF Sensor	Medical Health	In Progress
\$7,489,095	\$2,246,729	DOE	03/21 – 02/24	Optical Sensor	Harsh Environment	In Progress
\$445,664	\$178,266	SFSA	08/21 – 01/23	Optical Sensor	Harsh Environment	In Progress
\$500,000	\$500,000	ARO	09/21 – 08/23	Optical Sensor	Harsh Environment	In Progress
<b>\$17,214,109</b>	<b>\$8,219,082</b>	<b>Federal grants: \$15,822,194</b>			<b>Industry/State/Other grants: \$1,391,915</b>	

**INTERNAL SEED GRANTS**

**Total internal seed funds: \$114,325**

Internal grant summary

Amount	Centers	Dates	Topic	Application	Status
\$15,676	CISE seed funding	02/16 – 08/16	Optical Sensor	Structural Health	Completed
\$15,300	CASB BIC Pilot Study	08/16 – 06/18	Optical Sensor	Medical Health	Completed
\$17,257	ISC post-doc matching	06/17 – 05/19	RF Sensor	Harsh Environment	Completed
\$9,273	ISC seed funding	02/17 – 09/17	Optical Sensor	Harsh Environment	Completed
\$9,273	ISC seed funding	01/18 – 12/18	Optical Sensor	Structural Health	Completed
\$9,273	ISC seed funding	09/18 – 08/19	Optical Sensor	Harsh Environment	Completed
\$9,273	ISC seed funding	07/18 – 07/21	Optical Sensor	Harsh Environment	Completed
\$15,000	MRC seed funding	06/18 – 05/19	Optical Sensor	Harsh Environment	Completed

\$14,000	MRC seed funding	02/18 – 01/19	Optical Sensor	Harsh Environment	Completed
\$1,000	CAFÉ travel grant	06/18 – 06/19	RF Sensor	Medical Health	Completed
<b>Total: \$114,325</b>					

## PUBLICATIONS

### BOOK CHAPTERS

1. C. Zhu, R.E. Gerald II, and J. Huang\*, "Micromachined Optical Fiber Sensors for Biomedical Applications," *Methods in Molecular Biology*, 3<sup>rd</sup> edition, Humana Press, Editors: Miguel Ossandon, Avi Rasooly and Houston Baker, accepted 2020.

### JOURNAL PAPERS (\* Corresponding author and the student of the PI as the major contributor)

#### 2021

1. M. Roman, D. Balogun, C. Zhu, L. Bartlett, R. J. O'Malley, R. E. Gerald, and J. Huang\*. "Thermal Mapping of Metal Casting Mold using High Resolution Distributed Fiber-Optic Sensors." *IEEE Transactions on Instrumentation and Measurement*, in press (2021)
2. X. Xu, T. Han, J. Huang, A. A. Kruger, A. Kumar, and A. Goel. "Machine Learning Enabled Models to Predict Sulfur Solubility in Nuclear Waste Glasses." *ACS Applied Materials & Interfaces* (2021).
3. R. Cook, T. Han, A. Childers, C. Ryckman, K. Khayat, H. Ma, J. Huang, and A. Kumar. "Machine Learning for High-Fidelity Prediction of Cement Hydration Kinetics in Blended Systems." *Materials & Design* (2021): 109920.
4. C. Zhu\*, and J. Huang\*. "Sensitivity-enhanced microwave-photonic optical fiber interferometry based on the Vernier effect." *Optics Express* 29, no. 11 (2021): 16820-16832.
5. C. Zhu, R.E. Gerald, and J. Huang\*. "Metal-organic Framework Materials Coupled to Optical Fibers for Chemical Sensing: A Review." *IEEE Sensors Journal* (2021).
6. C. Zhu, Y. Tang, J. Guo, R.E. Gerald, and J. Huang\*. "High-Temperature and High-Sensitivity Pressure Sensors based on Microwave Resonators." *IEEE Sensors Journal* (2021).
7. C. Zhu, and J. Huang\*. "Microwave-photonic optical fiber interferometers for refractive index sensing with high sensitivity and tunable dynamic range." *Optics Letters* in press (2021).
8. H. Wang, J. Ma, J. Zhang, Y. Feng, M. Vijjapu, S. Yuvaraja, S. Surya et al., and J. Huang, "Gas Sensing Materials Roadmap." *Journal of Physics: Condensed Matter* (2021).
9. D. Balogun, M. Roman, R. E. Gerald, J. Huang, L. Bartlett, and R. O'Malley. "Shell Measurements and Mold Thermal Mapping Approach to Characterize Steel Shell Formation in Peritectic Grade Steels." *Steel Research International*, in press (2021).
10. W. Liao, C. Zeng, Y. Zhuang, H. Ma, W. Deng, J. Huang, "Mitigation of thermal curling of concrete slab using phase change material: A feasibility study." *Cement and Concrete Composites*, in press, 2021.
11. J. Lapeyre, T. Han, B. Wiles, H. Ma, J. Huang, G. Sant, and A. Kumar. "Machine learning enables prompt prediction of hydration kinetics of multicomponent cementitious systems." *Scientific reports* 11, no. 1 (2021): 1-16.
12. Y. Zhuang, Q. Yang, T. Han, R. O'Malley, A. Kumar, R.E. Gerald II\*, and J. Huang\*. "Fiber Optic Sensor Embedded Smart Helmet for Real-time Impact Sensing and Analysis through Machine Learning." *Journal of Neuroscience Methods*: In press (2021).

13. C. Zhu, D. Alla, and J. Huang\*. "High-temperature stable FBGs fabricated by point-by-point femtosecond laser inscription for multi-parameter sensing." *OSA Continuum* in press (2021).
14. M. Roman, C. Zhu\*, R. J. O'Malley, R. E. Gerald, and J. Huang\*. "Distributed Fiber-Optic Sensing with Low Bending Loss Based on Thin-Core Fiber." *IEEE Sensors Journal* in press (2021).
15. C. Zhu, R.E Gerald II, and J. Huang\*. "Ultra-sensitive Microwave-photonic Optical Fiber Interferometry based on Phase-shift Amplification." *IEEE Journal of Selected Topics in Quantum Electronics* in press (2021).
16. J. Liu, I. Jasim, C. Zhu, M. Roman, J. Huang; E. Kinzel, and M. Almasri. "Microsphere photolithography patterned nanohole array on an optical fiber," in press, *IEEE Access* (2021)
17. J. Liu, I. Jasim, T. Liu, J. Huang, E. Kinzel, and M. Almasri. "Off-axis microsphere photolithography patterned nanohole array and other structures on an optical fiber tip for glucose sensing." *RSC Advances* 11, no. 42 (2021): 25912-25920.

## 2020

18. C. Zhu, R.E. Gerald II and J. Huang\*, "Progress towards Sapphire Optical Fiber Sensors for High-temperature Applications," in *IEEE Transactions on Instrumentation and Measurement*, accepted, 2020.
19. C. Zhu, Y. Chen, R.E. Gerald II, and J. Huang\*. "Ultra-sensitive Open-ended Coaxial Cable-based Microwave Resonator Learns to Sense Impacts." *IEEE Transactions on Instrumentation and Measurement* (2020).
20. C. Zhu, R.E. Gerald II and J. Huang\*, "Microwave device inspired by fiber-optic extrinsic Fabry-Perot interferometer: a novel ultra-sensitive sensing platform," in *Journal of Lightwave Technology*, in press 2020.
21. R. Cai, T. Han, W. Liao, J. Huang, D. Li, A. Kumar, and H. Ma, "Prediction of Surface Chloride Concentration of Marine Concrete using Ensemble Machine Learning." *Cement and Concrete Research*, in press 2020.
22. E. Goma, T. Han, M. ElGawady, J. Huang, and A. Kumar, "Machine Learning to Predict Properties of Fresh and Hardened Alkali-activated Concrete." *Cement and Concrete Composites*, in press 2020.
23. C. Zhu, Y. Chen, R.E. Gerald II, and J. Huang\*, "Highly-sensitive Open-ended Coaxial Cable Resonator for Humidity Sensing." *Sensors and Actuators A: Physical*, accepted 2020.
24. M. Roman, D. Balogun, Y. Zhuang, R.E. Gerald II, L. Bartlett, R. O'Malley, and J. Huang\*, "A Spatially Distributed Fiber-Optic Temperature Sensor for Applications in the Steel Industry." *Sensors*, accepted 2020.
25. C. Zhu, R.E. Gerald, Y. Chen, and J. Huang\*, "One-dimensional Sensor Learns to Sense Three-dimensional Space." *Optics Express*, 28, 19374-19389 (2020).
26. Y. Zhuang, Y. Chen, C. Zhu, R.E. Gerald, Y. Tang, and J. Huang\*. "A High-Resolution Two-dimensional Fiber Optic Inclinometer for Structural Health Monitoring Applications." *IEEE Transactions on Instrumentation and Measurement*, in press 2020.
27. C. Zhu, Y. Chen, R.E. Gerald, and J. Huang\*. "Probing Changes in Pressure with Sub-pascal Resolution Using an Optical Fiber Fabry-Perot Interferometer." *IEEE Transactions on Instrumentation and Measurement* in press, 2020.
28. W. Liao, Y. Zhuang, C. Zeng, W. Deng, J. Huang\*, H. Ma\*, "Fiber Optic Sensors Enabled Monitoring of Thermal Curling of Concrete Pavement Slab: Temperature, Strain and Inclination." *Measurement*, in press 2020.

29. T. Han, A. Siddique, K. Khayat, J. Huang, A. Kumar, "An ensemble machine learning approach for prediction and optimization of modulus of elasticity of recycled aggregate concrete, ***Construction and Building Materials***, in press 2020.
30. T. Han, N. Stone-Weiss, J. Huang, A. Goel, and A. Kumar, "Machine learning as a tool to design glasses with controlled dissolution for healthcare applications," ***Acta Biomaterialia***, in press 2020.
31. M. Huang, S. Chen, J. Huang, R.E. Gerald, K. Woelk, "NMR studies of materials loaded into porous-wall hollow glass microspheres." ***Materials Science and Engineering: C***, in press 2020.

## **2019**

32. C. Zhu, R.E. Gerald II, and J. Huang\*, " Probing the Theoretical Ultimate Limit of Coaxial Cable Sensing: Measuring Nanometer-Scale Displacements," ***IEEE transactions on microwave theory and techniques***, in press 2019.
33. C. Zhu, R.E. Gerald, and J. Huang\*, "A Dual-parameter Internally Calibrated Fabry-Perot Microcavity Sensor," ***IEEE Sensors Journal***, in press 2019.
34. X. Sun, Y. Du, W. Liao, H. Ma, and J. Huang\*, "Measuring the heterogeneity of cement paste by truly distributed optical fiber sensors," ***Construction and Building Materials***, vol. 225, pp. 765-771, 2019.
35. T. Xue, L. Xu, Q. Wang, B. Wu, and J. Huang, "A 3-D Reconstruction Method of Dense Bubbly Plume Based on Laser Scanning," in press ***IEEE Transactions on Instrumentation and Measurement*** 2019.
36. T. Wei and J. Huang\*, "Transmission Line Identification via Impedance Inhomogeneity Pattern," in press ***IEEE Journal of Radio Frequency Identification*** 2019.
37. F. Tang, Z. Li, Y. Chen, H. Li, J. Huang and M. J. O'Keefe, "Monitoring Passive Film Growth on Steel using Fe-C Coated Long Period Grating Fiber Sensor," accepted in ***IEEE Sensors Journal***
38. C. Zhu, Y. Zhuang, Y. Chen, RE. Gerald, and J. Huang\*. "Distributed fiber-optic pressure sensor based on Bourdon tubes metered by optical frequency-domain reflectometry." ***Optical Engineering*** 58, no. 7 (2019): 072010.
39. S. Jothibas, Y. Du, S. Anandan, GS. Dhaliwal, RE. Gerald, SE. Watkins, K. Chandrashekhara, and J. Huang\*. "Spatially continuous strain monitoring using distributed fiber optic sensors embedded in carbon fiber composites." ***Optical Engineering*** 58, no. 7 (2019): 072004.
40. C. Zhu, Y. Zhuang, Y. Chen, and J. Huang\*. "Truly Distributed Coaxial Cable Sensing Based on Random Inhomogeneities." ***IEEE Transactions on Instrumentation and Measurement*** (2019).
41. C. Zhu, JA. Perman, RE. Gerald II, S. Ma, and J. Huang\*. "Chemical Detection using a Metal-organic Framework Single Crystal Coupled to an Optical Fiber." ***ACS applied materials & interfaces*** (2019).
42. C. Zhu, Y. Zhuang, Y. Chen, B. Zhang, and J. Huang\*. "Contactless liquid interface measurement based on a hollow coaxial cable resonator." ***Sensors and Actuators A: Physical*** 285 (2019): 623-627.

## **2018**

43. C. Zhu, Y. Zhuang, B. Zhang, R. Muhammad, P.P. Wang, and J. Huang\*. "A Miniaturized Optical Fiber Tip High-Temperature Sensor Based on Concave-Shaped Fabry-Perot Cavity." ***IEEE Photonics Technology Letters*** 31, no. 1 (2018): 35-38.
44. L. Chi, M. Huang, AR. Pfaff, J. Huang, R.E. Gerald, and K. Woelk. "Capillary-tube package devices for the quantitative performance evaluation of nuclear magnetic resonance spectrometers and pulse sequences." ***Review of Scientific Instruments*** 89, no. 12 (2018): 123115.

45. F. Yang, B. Wu, W. Ding, Y. Xu, T. Xue, M. Ahmed, and J. Huang. "A cost-effective non-orthogonal 3D measurement system." *Measurement* 128 (2018): 264-270
46. Z. Chen, Y. Zhuang, Y. Chen, and J. Huang\*. "A Liquid-Level Sensor Based on a Hollow Coaxial Cable Fabry-Perot Resonator with Micrometer Resolution." *IEEE Transactions on Instrumentation and Measurement* 99 (2018): 1-6.
47. C. Zhu, Y. Chen, Y. Zhuang, F. Tang, and J. Huang\*. "An Embeddable Strain Sensor with 30 Nano-Strain Resolution Based on Optical Interferometry." *Inventions* 3, no. 2 (2018): 20.
48. C. Zhu, Y. Chen, Y. Zhuang, and J. Huang\*. "Displacement and Strain Measurement up to 1000° C Using a Hollow Coaxial Cable Fabry-Perot Resonator." *Sensors* 18, no. 5 (2018).
49. X Kang, C Cui, C Wang, G Wu, H Chen, Z Lu, X Chen, L Wang, J Huang, H Geng, M Zhao. CAMKs support development of acute myeloid leukemia. *Journal of hematology & oncology*. 2018 11(1):30.
50. C. Zhu, Y. Zhuang, Y. Chen, and J. Huang\*. "A Hollow Coaxial Cable Fabry-Perot Resonator for Liquid Dielectric Constant Measurement." *Review of Scientific Instruments*, (2018) Accepted.
51. Y. Zhuang, Y. Chen, C. Zhu R.E. Gerald, and J. Huang\*. "Probing changes in tilt angle with 20 nanoradian resolution using an extrinsic Fabry-Perot interferometer-based optical fiber inclinometer." *Optics Express*, 26, no. 3 (2018): 2546-2558.
52. C. Zhu, Y. Chen, Y. Zhuang, G. Fang, X. Liu and J. Huang\*. "Optical Interferometric Pressure Sensor Based on a Buckled Beam with Low Temperature Cross-sensitivity." *IEEE Transactions on Instrumentation and Measurement*, vol. PP, no. 99, pp. 1-6. (2018).
53. C. Zhu, Y. Chen, Y. Zhuang, and J. Huang\*. "A Centimeter-Range Displacement Sensor Based on a Hollow Coaxial Cable Fabry-Perot Resonator." *IEEE Sensors Journal* 18, no. 11 (2018): 4436-4442.
54. Y. Du, Y. Chen, Y. Zhuang, C. Zhu, R.E. Gerald, and J. Huang\*. "A Uniform Strain Transfer Scheme for Accurate Distributed Optical Fiber Strain Measurements in Civil Structures." *Inventions* 3, no. 2 (2018): 30.

## 2017

55. Y. Zhuang, Y. Du, C. Zhu, M. Ahmed, Y. Chen, R.E. Gerald, and J. Huang\*. "A Microwave Photonics Fiber Loop Ring-Down System." *IEEE Sensors Journal* 17, no. 20 (2017): 6565-6570.
56. Y. Du, S. Jothibas, Y. Zhuang, C. Zhu, and J. Huang\*. "Rayleigh backscattering based macrobending single mode fiber for distributed refractive index sensing." *Sensors and Actuators B: Chemical* 248 (2017): 346-350.
57. Y. Du, S. Jothibas, Y. Zhuang, C. Zhu, and J. Huang\*. "Unclonable Optical Fiber Identification Based on Rayleigh Backscattering Signatures." *Journal of Lightwave Technology*, 35, no. 21 (2017): 4634-4640.
58. Y. Du, Y. Chen, Y. Zhuang, C. Zhu, F. Tang, and J. Huang\*. "Probing Nanostrain via a Mechanically Designed Optical Fiber Interferometer." *IEEE Photonics Technology Letters* 29, no. 16 (2017): 1348-1351.
59. Y. Du, Q. Yang, and J. Huang\*. "Soft Prosthetic Forefinger Tactile Sensing via a String of Intact Single Mode Optical Fiber." *IEEE Sensors Journal* vol. 17, no. 22, pp. 7455-7459, (2017).
60. Y. Du, Y. Chen, C. Zhu, Y. Zhuang, and J. Huang\*. "An embeddable optical strain gauge based on a buckled beam." *Review of Scientific Instruments* 88, no. 11 (2017): 115002.

61. C. Zhu, Y. Chen, Y. Du, Y. Zhuang, F. Liu, R.E. Gerald, and J. Huang\*. "A displacement sensor with centimeter dynamic range and submicrometer resolution based on an optical interferometer." **IEEE Sensors Journal** 17, no. 17 (2017): 5523-5528.
62. M. Ahmed, T. Xue, B. Wu, and J. Huang\*. "High Quality Factor Coaxial Cable Fabry-Perot Resonator for Sensing Applications." **IEEE Sensors Journal** 17, no. 10 (2017): 3052-3057.
63. C. Zhu, Y. Chen, Y. Zhuang, Y. Du, R.E. Gerald, Y. Tang and J. Huang\*. "Optical Interferometric Triaxial Displacement Sensor for Structural Health Monitoring: Characterization of Sliding and Debonding for a Delamination Process." **Sensors** 17 (11), 2696 (2017).

## 2016

64. A. Ghazanfari, W. Li, M. Leu, Y. Zhuang, and J. Huang. "Advanced ceramic components with embedded sapphire optical fiber sensors for high temperature applications." **Materials & Design** 112 (2016): 197-206.
65. H. Wang, L. Yuan, C. Kim, J. Huang, X. Lan, and H. Xiao. "Integrated microsphere whispering gallery mode probe for highly sensitive refractive index measurement." **Optical Engineering** 55, no. 6 (2016): 067105-067105.
66. J. Huang, X. Lan, W. Zhu, B. Cheng, J. Fan, Z. Zhou, and H. Xiao, "Interferogram Reconstruction of Cascaded Coaxial Cable Fabry-Perot Interferometers for Distributed Sensing Application," **IEEE Sensors Journal**, 16, no. 11 (2016): 4495-4500.
67. L. Yuan, B. Cheng, J. Huang, J. Liu, H. Wang, X. Lan, and H. Xiao, "Stress-induced birefringence and fabrication of in-fiber polarization devices by controlled femtosecond laser irradiations," **Optics Express**, vol. 24, pp. 1062-1071, 2016.

## 2015

68. L. Hua, Y. Song, J. Huang, X. Lan, Y. Li, and H. Xiao, "Microwave interrogated large core fused silica fiber Michelson interferometer for strain sensing," **Applied Optics**, vol. 54, pp. 7181-7187, 2015.
69. J. Huang, X. Lan, Y. Song, Y. Li, L. Hua, and H. Xiao, "Microwave interrogated sapphire fiber Michelson interferometer for high temperature sensing," **Photonics Technology Letters, IEEE**, vol. 27, pp. 1398-1401, 2015.
70. H. Wang, L. Yuan, C. Kim, J. Huang, Y. Ma, H. Xiao, "Integrated Chemical Vapor Sensor Based on Thin Wall Capillary Coupled Porous Glass Microsphere Optical Resonator", **Sensors and Actuators B: Chemical**, vol. 216, pp. 332-336, 2015.

## 2014

71. J. Huang, X. Lan, M. Luo, H. Xiao, "Spatially continuous distributed fiber optic sensing using optical carrier based microwave interferometry," **Optics Express**, vol. 22, pp. 18757-18769, 2014.
72. J. Huang, T. Wei, T. Wang, J. Fan, and H. Xiao, "Control of Critical Coupling in a Coiled Coaxial Cable Resonator," **Review of Scientific Instrument**, vol. 85, pp. 016405RSI, 2014.
73. J. Huang, X. Lan, A. Karl, H. Wang, L. Yuan, H. Xiao, "Temperature Compensated Refractometer based on a Cascaded SMS/LPFG Fiber Structure," **Sensors and Actuators: B-Chemical**, vol. 198, pp. 384-387, 2014.
74. J. Huang, T. Wei, J. Fan and H. Xiao, "Coaxial cable Bragg grating assisted microwave coupler," **Review of Scientific Instruments**, vol.85, pp. 014703, 2014.
75. X. Wen, J. Huang, H. Xiao, M. Yang, "ZnO-coated SMS structure interrogated by a fiber laser for chemical sensing," **Measurement Science and Technology**, accepted, 2014.

76. Y. Zhang, J. Huang, X. Lan, L. Yuan, and H. Xiao, "Simultaneous measurement of temperature and pressure with cascaded EFPI and IFPI Sensors," **Optical Engineering**, vol. 53, pp. 067101, 2014.
77. L. Yuan, X. Lan, J. Huang, H. Wang, L. Jiang, and H. Xiao, "Comparison of silica and sapphire fiber SERS probes fabricated by a femtosecond laser," **IEEE Photonics Technology Letters**, vol. 26, pp. 1299-1302, 2014.
78. S. Wu, T. Wei, J. Huang, H. Xiao and J. Fan, "Modeling of Coaxial Cable Bragg Grating by Coupled Mode Theory," **IEEE Transactions on Microwave Theory and Techniques**, vol. pp, no. 99, pp. 1-9, 2014.
79. L. Yuan, J. Huang, X. Lan, H. Wang, L. Jiang, Hai Xiao, "All-in-fiber optofluidic sensor fabricated by femtosecond laser assisted chemical etching," **Optics Letters**, vol. 39, pp. 2358-2361, 2014.
80. X. Lan, B. Cheng, Q. Yang, J. Huang, H. Wang, Y. Ma, H. Shi, H. Xiao, "Reflection based extraordinary optical transmission fiber optic probe for refractive index sensing," **Sensors and Actuators B-Chemical**, vol. 193, pp. 95-99, 2014.
81. A. Kaur, S. E. Watkins, J. Huang, L. Yuan, and H. Xiao, "Micro-cavity Strain Sensor for High Temperature Applications," **Optical Engineering**, vol. 53, pp. 017105, 2014.
82. L. Yuan, X. W. Lan, J. Huang, and H. Xiao, "Femtosecond laser processing of glass materials for assembly-free fabrication of photonic microsensors," **Advances in Science and Technology**, 2014, pp. 166-173.

## 2013

83. J. Huang, T. Wang, L. Hua, J. Fan, H. Xiao, M. Luo, "A Coaxial Cable Fabry-Perot Interferometer for Sensing Applications," **Sensors**, vol. 13, pp.15252-15260, 2013.
84. J. Huang, L. Hua, X. Lan, T. Wei, H. Xiao, "Microwave assisted reconstruction of optical interferograms for distributed fiber optic sensing," **Optics Express**, vol. 21, pp. 18152-18159, 2013.
85. Y. Zhang, L. Yuan, X. Lan, A. Kaur, J. Huang, and H. Xiao, "High temperature fiber optic Fabry-Perot interferometric pressure sensor fabricated by femtosecond laser," **Optics Letters**, vol. 38, pp. 4609-4612, 2013.
86. H. Wang, L. Yuan, J. Huang, X. Lan, C.W. Kim, L. Jiang, H. Xiao, "Computational Modeling and Experimental Study on Optical Microresonators Using Optimal Spherical Structure for Chemical Sensing," **Advanced Chemical Engineering Research**, vol. 2, pp. 45-50, 2013.
87. H. Wang, X. Lan, J. Huang, L. Yuan, L., C.-W. Kim, H. Xiao, "Fiber pigtailed thin wall capillary coupler for excitation of microsphere WGM resonator," **Optics Express**, vol. 21, pp. 15834-15839, 2013.
88. B. Cheng, X. Lan, J. Huang, X. Fang, H. Xiao, "Flexible fabrication of long-period fiber grating devices based on erasing effect by controlled Co2 laser pulse exposure," **Microwave and Optical Technology Letters**, vol. 55, pp. 1735-1738, 2013.
89. X. Lan, Q. Han, J. Huang, H. Wang, Z. Gao, A. Kaur, H. Xiao, "Turn-around Point Long-period Fiber Grating Fabricated by CO2 Laser for Refractive Index Sensing," **Sensors and Actuators B-Chemical**, vol. 177, pp. 1149-1155, 2013.

## 2012

90. J. Huang, X. Lan, H. Wang, L. Yuan, T. Wei, Z. Gao, H. Xiao, "Polymer optical fiber for large strain measurement based on multimode interference," **Optics Letters**, vol. 37, pp. 4308-4310, 2012.
91. J. Huang, X. Lan, T. Wei, Q. Han, Z. Gao, Z. Zhou, H. Xiao, "Radio Frequency Interrogated Actively Mode-locked Fiber Ring Laser for Sensing Application," **Optics Letters**, vol. 37, pp. 494-496, 2012.

92. J. Huang, X. Lan, A. Kaur, H. Wang, L. Yuan, H. Xiao, "Reflection based Phase Shifted Long Period Fiber Grating for Simultaneous Measurement of Temperature and Refractive Index," *Optical Engineering*, vol. 52, pp. 014404, 2013.
93. J. Huang, T. Wei, S. Wu, X. Lan, J. Fan, H. Xiao, "Coaxial Cable Bragg Grating Sensors for Structural Health Monitoring," *International Journal of Pavement Research and Technology*, vol. 5, pp. 338-342, 2012.
94. L. Yuan, T. Wei, Q. Han, H. Wang, J. Huang, L. Jiang, H. Xiao, "Fiber Inline Michelson Interferometer Fabricated by a Femtosecond Laser," *Optics Letters*, vol. 37, pp. 4489-4491, 2012.
95. Q. Han, X. Lan, J. Huang, A. Kaur, T. Wei, Z. Gao, and H. Xiao, "Long-period grating inscribed on concatenated double-clad and single-clad fiber for simultaneous measurement of temperature and refractive index," *IEEE Photonics Technology Letters*, vol. 24, pp.1130 – 1132, 2012.
96. X. Lan, J. Huang, Q. Han, T. Wei, Z. Gao, H. Jiang, J. Dong, H. Xiao, "Fiber Ring Laser Interrogated Zeolite Coated SMS Structure for Trace Chemical Detection," *Optics Letters*, vol. 37, pp.1998-2000, 2012.
97. T. Wei, J. Huang, X. Lan, Q. Han, H. Xiao, "Optical Fiber Sensor based on Radio Frequency Mach-Zehnder Interferometer," *Optics Letters*, vol. 37, pp. 647-649, 2012.

## 2011

98. T. Wei, S. Wu, J. Huang, H. Xiao, J. Fan, "Coaxial Cable Bragg Grating," *Applied Physics Letters*, vol. 99, pp.113517, 2011.
99. X. Lan, Q. Han, T. Wei, J. Huang, H. Xiao, "Turn-Around-Point Long-Period Fiber Gratings Fabricated by CO2 Laser Point-by-Point Irradiations," *IEEE Photonics Technology Letters*, vol. 23, pp. 1664-1666, 2011.

## CONFERENCE PROCEEDINGS AND PRESENTATIONS

1. M. Roman and J. Huang, "Applications of Fiber Optic Sensors in Ceramic Industry," 56th Annual Symposium on Refractories, March 2021, St. Louis, MO.
2. M. Roman, D. Balogun, R. E. Gerald II, L. Bartlett, J. Huang, and R. J. O'Malley, "Peritectic Behavior Detection in the Fe-C-Mn-Al-Si Steel System using Fiber Optic Temperature Mapping," Proceedings of the AISTech 2020 (2020, Cleveland, OH), pp. 822-833, Association for Iron & Steel Technology (AIST), Sep 2020.
3. D. Balogun, M. Roman, R. E. Gerald II, L. Bartlett, J. Huang, and R. J. O'Malley, "A Fiber Optic Distributed Temperature Mapping Technique to Characterize Shell Solidification in Peritectic Grade Steels," Proceedings of the AISTech 2021 (2021, Nashville, TN), pp. 471-479, Association for Iron & Steel Technology (AIST), June 2020.
4. D. Balogun, M. Roman, J. Huang, R.E. Gerald and R. J. O'Malley, "Peritectic Behavior Detection in the Fe-C-Mn-Al-Si Steel System using Fiber Optic Temperature Mapping", Proc. AISTech 2020, PR-380-087.13370, <http://digital.library.aist.org/categories/2020aistechconferenceproceedings-pr.htm>
5. C. Zhu and J. Huang, "Smart Fiber-optic Inclinometer." Conference on Lasers and Electro-Optics (CLEO), web conference, May 2020.
6. J. Liu, I. Jasim, C. Zhu, M. Roman, E. Kinzel, J. Huang, and M. Almasri. "Microsphere Photolithography Patterning of Plasmonic Sensors on Optical Fiber." In *2019 IEEE Research and Applications of Photonics in Defense Conference (RAPID)*, pp. 1-2. IEEE, 2019.

7. H. Mehdipourpicha, R. Bo, H. Chen, M. Rana, J. Huang, "Transformer Fault Diagnosis Using Deep Neural Network", *2019 Innovative Smart Grid Technologies Asia (ISGT Asia)*, Chengdu, China, 2019
8. JE. Johnson, N. Capps, C. Zhu, JH. Hsu, J. Goldstein, R. Brow, J. Huang, D. Bristow, R. Landers, and E.C. Kinzel. "Direct write of photonics using a filament-fed laser-heated process." In *Laser 3D Manufacturing VI*, vol. 10909, p. 109090Q. International Society for Optics and Photonics, 2019.
9. C. Zhu and J. Huang, "Truly distributed coaxial cable sensing based on random inhomogeneities." Paper No. 11000-23 SPIE Defense + Commercial Sensing, April 2019
10. C. Zhu and J. Huang, "Displacement and strain measurement up to 1000 °C using a hollow coaxial cable Fabry-Perot resonator." Paper No. 11000-22 SPIE Defense + Commercial Sensing, April 2019
11. C. Zhu and J. Huang, "Optical fiber Fabry-Perot interferometer based embeddable strain sensor with 30 nano-strain resolution." Paper No. 11000-10 SPIE Defense + Commercial Sensing, April 2019
12. C. Zhu and J. Huang, "A miniaturized optical fiber tip high-temperature sensor based on concave-shaped Fabry-Perot cavity." Paper No. 10982-119 SPIE Defense + Commercial Sensing, April 2019
13. J. Liu, I. Jasim, M. Roman, Y. Yang, C. Qu, J. Huang, E. Kinzel, and M. Almasri. "Functional Plasmonic Fiber-Optic Based Sensors Using Low-Cost Microsphere Photolithography." In *2019 20th International Conference on Solid-State Sensors, Actuators and Microsystems & Eurosensors XXXIII (TRANSDUCERS & EUROSENSORS XXXIII)*, pp. 1545-1548. IEEE, 2019.
14. I. Jasim, J. Liu, Y. Yang, C. Qu, C. Zhu, M. Roman, J. Huang, E.C. Kinzel, and M. Almasri "Low-cost fabrication of Functional plasmonic fiber-optic based sensors using microsphere photolithography." Paper No. 11000-12 SPIE Defense + Commercial Sensing, April 2019
15. M. Parker, L. Albrecht, M. Huang, Jie Huang, R. Gerald II, K. Woelk, "Low-Cost Solution for Optically Induced NMR Hyperpolarization." 51st Southeastern Undergrad Research Conference, University of Tennessee, Martin, Feb 2019.
16. W. Naku, M. Parker, M. Roman, R. Gerald II, and J. Huang, "Micro-scale FP Interferometer for Liquid-Liquid Extraction Experiments." 51st Southeastern Undergrad Research Conference, University of Tennessee, Martin, Feb 2019.
17. M. Huang, M. Parker, K. Woelk, Jie Huang, and R. Gerald II, "Simple Laser System for Hyperpolarized NMR Experiments." 51st Southeastern Undergrad Research Conference, University of Tennessee, Martin, Feb 2019.
18. J. Huang, "Compact and robust optical Fabry-Perot interferometers for structural health monitoring", Paper No.10654-16 SPIE Defense + Commercial Sensing Apr. 2018
19. L. Chi, M. Huang, A. Pfaff, R.E. Gerald II, J. Huang, and K. Woelk, "NMR hardware and pulse sequences with CapPack™ devices" 59th Experimental Nuclear Magnetic Resonance Conference April 29 - May 4, 2018 Orlando, FL
20. M. Huang, S. Chen, R. Gerald II, J. Huang, and K. Woelk, "NMR Studies of Loaded Microspheres" 59th Experimental Nuclear Magnetic Resonance Conference April 29 - May 4, 2018 Orlando, FL
21. R.E. Gerald II, J. Huang, K. Woelk, M. Huang, L. Chi, W. Stoecker, and S. Cartwright, "Acupuncture-MRI Cancer Probe" 59th Experimental Nuclear Magnetic Resonance Conference April 29 - May 4, 2018 Orlando, FL

22. S. Jothibas and J. Huang, "Spatially continuous strain monitoring of carbon fiber composites using embedded distributed fiber optic sensors" Paper No. 10598-17 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
23. Y. Zhuang and J. Huang, "A pendulum based optical fiber inclinometer with nanoradian resolution" Paper No.10598-86 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
24. C. Zhu and J. Huang, "A three-dimensional sliding and debonding sensor based on triaxial optical fiber Fabry-Perot interferometers Paper No. 10598-122 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
25. C. Zhu and J. Huang, "An optical fiber extrinsic Fabry-Perot interferometer based displacement sensor with centimeter measurement range" Paper No.10598-131 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
26. C. Zhu and J. Huang, "Wide-range displacement sensor based on a hollow coaxial cable Fabry-Perot resonator" Paper No.10598-136 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
27. C. Zhu and J. Huang, "Buckled beam based optical interferometric pressure sensor with low temperature cross-sensitivity" Paper No.10598-137 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
28. Y. Zhuang and J. Huang, "Frequency domain fiber loop ring-down system for liquid refractive index sensing" Paper No. 10598-144 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
29. Y. Zhuang and J. Huang, "A high resolution extrinsic Fabry-Perot interferometer-based two-dimensional optical fiber inclinometer" Paper No.10598-145 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
30. Y. Zhuang and J. Huang, "A novel high temperature sensor based on a hollow coaxial cable Fabry-Perot resonator" Paper No. 10598-146 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
31. Y. Du and J. Huang, "A mechanical designed EFPI using buckling beam mechanism for strain sensing Paper No. 10598-147 SPIE Smart Structures + Nondestructive Evaluation Mar. 2018
32. A. Ghazanfari, W. Li, M. Leu, Y. Zhuang, and J. Huang. "Freeform extrusion fabrication of advanced ceramic components with embedded sapphire optical fiber sensors." ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS), 2016. **(Best student paper award)**
33. Y. Song, L.Yuan, L. Hua, Q. Zhang, J. Lei, J. Huang, and H. Xiao. "Ferrofluid-based optical fiber magnetic field sensor fabricated by femtosecond laser irradiation." In SPIE OPTO, pp. 97501U-97501U. International Society for Optics and Photonics, 2016.
34. L. Hua, Y. Song, J. Huang, B. Cheng, W. Zhu, and H. Xiao. "Femtosecond laser fabricated multimode fiber sensors interrogated by optical-carrier-based microwave interferometry technique for distributed strain sensing." In SPIE OPTO, pp. 97540V-97540V. International Society for Optics and Photonics, 2016.
35. L. Yuan, Y. Zhang, J. Huang, J. Liu, Y. Song, Q. Zhang, J. Lei, and H. Xiao. "Femtosecond laser processing of transparent materials for assembly-free fabrication of photonic microsensors." In SPIE LASE, pp. 97351C-97351C. International Society for Optics and Photonics, 2016.
36. J. Liu, L. Yuan, J. Huang, and H. Xiao. "A cantilever based optical fiber acoustic sensor fabricated by femtosecond laser micromachining." In SPIE LASE, pp. 973804-973804. International Society for Optics and Photonics, 2016.J. Huang, L. Hua, L. Yuan, "Optical fiber based microwave-photonic interferometric sensors," SPIE Proceedings, Photonics West, 13–18 Feb. 2016, San Francisco, California, USA.

37. L. Yuan, B. Cheng, J. Liu, J. Huang, H. Xiao “All optical fiber polarization controlling devices fabricated by femtosecond laser irradiation,,” SPIE Proceedings, Photonics West, 13–18 Feb. 2016, San Francisco, California, USA.
38. J. Huang, L. Hua, Y. Li, H. Xiao, “Spatially Continuous Fully Distributed Microwave and Photonic Sensors for Structural Health Monitoring”, (Invited Presentation) SAMPE Baltimore, May. 2015.
39. J. Huang, X. Lan, H. Wang, L. Yuan, H. Xiao, “Optical carrier based microwave interferometers for sensing application,” SPIE DSS, Baltimore, May. 2014.
40. L. Yuan, X. Lan, J. Huang, H. Xiao, “Femtosecond Laser Processing of Glass Materials for Assembly-Free Fabrication of Photonic Microsensors”, Advances in Science and Technology, 2014.
41. H. Wang, X. Lan, J. Huang, L. Yuan, H. Xiao, “Fiber pigtailed thin wall capillary coupler for excitation of microsphere WGM resonator in chemical sensing,” SPIE DSS, Baltimore, May. 2014
42. L. Yuan, X. Lan, J. Huang, H. Wang, B. Cheng, J. Liu, H. Xiao, “Miniaturized optical fiber Fabry-Perot interferometer fabricated by femtosecond laser irradiation and selective chemical etching,” Proceeding of SPIE, Photonics West, San Francisco, CA, Feb. 2014.
43. L. Yuan, X. Lan, J. Huang, H. Xiao, “Femtosecond laser processing of glass materials for assembly-free fabrication of photonic microsensors”, International conferences on modern materials & technology, Montecatini, Italy, 2014.
44. L. Chi, J. Huang, M. Huang, R E. Gerald II, K. Woelk, “Two CapPack Devices for Solution and Solid State NMR Applications,” 55th Experimental Nuclear Magnetic Resonance Conference, March 23rd – 28th, 2014, Boston, Massachusetts, USA.
45. L. Chi, K. Woelk, R E. Gerald II, R J. Klingler, P. Novak, A R. Pfaff, M. Huang, J. Huang, E T. Satterfield and A. Mollhagen, “Cap-Pack Devices for Quantitative NMR/MRI Investigation,” 2013 Chicago Area Discussion Group, November 9th, 2013, TCS Conference Center, Argonne National Lab, Chicago, Illinois, USA.
46. J. Huang, L. Hua, X. Lan, H. Xiao, “Fiber optic distributed sensing technology based on microwave reconstructed optical interferograms,” (Post-deadline Session Presentation) OSA Frontiers in Optics, Orlando, FL, Oct. 2013.
47. J. Huang, X. Lan, H. Wang, L. Yuan, H. Xiao, “Multimode polymer optical fiber-based SMS structure for large-strain measurement,” SPIE Smart structures/NDE, San Diego, CA, Mar. 2013.
48. L. Yuan, J. Huang, H. Wang, H. Xiao, “Cascaded fiber-optic intrinsic Fabry-Perot interferometers fabricated by femtosecond laser irradiation,” Proceeding of SPIE, Photonics West, San Francisco, CA, Feb. 2013.
49. J. Huang, X. Lan, H. Wang, L. Yuan, H. Xiao, “Radio frequency interrogation of a passively mode-locked fiber ring laser for sensing application,” Proceeding of SPIE, Photonics West, San Francisco, CA, Feb. 2013.
50. H. Wang, J. Huang, X. Lan, L. Yuan, H. Xiao, “Widely tunable fiber ring laser based on two cascaded long period fiber gratings with a core-mode blocker,” Proceeding of SPIE, Photonics West, San Francisco, CA, Feb. 2013.
51. J. Huang, X. Lan, H. Wang, L. Yuan, H. Xiao, “Fiber optic sensor based on radio frequency Bragg grating,” Proceeding of SPIE, Photonics West, San Francisco, CA, Feb. 2013.
52. J. Huang, X. Lan, H. Wang, L. Yuan, H. Xiao, “Polymer optical fiber for sensing application based on multimode interference,” Proceeding of SPIE, Photonics West, San Francisco, CA, Feb. 2013.

53. X. Lan, J. Huang, H. Wang, H. Xiao, "Fabrication and applications of visible light long-period fiber grating," Proceeding of SPIE, Photonics West, San Francisco, CA, Feb. 2013.
54. Z. Gao, X. Lan, J. Huang, H. Xiao, "Surface modified-ZSM-5 zeolite-coated long period fiber grating for ammonia detection in water," Proceeding of SPIE, Photonics West, San Francisco, CA, Feb. 2013.
55. T. Wei, J. Huang, X. Lan, Q. Han, H. Xiao, "Optical fiber sensor interrogation improved by active fiber loop," (Invited Presentation) SPIE Defense, Security and Sensing, Maryland, MD, Apr. 2012.
56. S. Wu, T. Wei, J. Huang, H. Xiao, J. Fan, "A study on Q-factor of CCBG sensors by coupled mode theory," SPIE Smart structures/NDE, San Diego, CA, Mar. 2012.
57. J. Huang, T. Wei, X. Lan, J. Fan, H. Xiao, "Coaxial cable Bragg grating sensors for large strain measurement with high accuracy", SPIE Smart structures/NDE, San Diego, CA, Mar. 2012.
58. X. Lan, Q. Han, J. Huang, X. Fang, T. Wei, Z. Gao, H. Xiao, "High order mode long-period fiber grating refractive index sensor based on intensity measurement," Proceeding of SPIE, Photonics West, San Francisco, CA, Jan. 2012.
59. X. Lan, J. Huang, Q. Han, Z. Gao, T. Wei, H. Xiao, "Fs laser fabricated D-shape fiber for surface enhanced Raman scattering substrate," OSA Fiber Lasers and Applications, San Diego, CA, Jan. 2012
60. X. Lan, J. Huang, Z. Gao, T. Wei, Q. Han, H. Xiao, "Hydrogen sensor based on palladium coated SMS fiber structure," OSA Laser Applications to Chemical, Security and Environmental Analysis, San Diego, CA, Jan. 2012
61. Q. Han, X. Lan, J. Huang, H. Xiao, "Refractive-index insensitive long-period fiber gratings point-by-point inscribed by CO2 laser for fiber sensors and lasers," Proceeding of SPIE, Photonics West, San Francisco, CA, Jan. 2012.
62. J. Huang, X. Lan, T. Wei, Q. Han, Z. Gao, H. Xiao, "Zeolite thin film-coated fiber sensor for measuring chemical trace based on multimode interferometer," OSA Advantages in Optical Materials, San Diego, CA, Jan. 2012.
63. J. Huang, T. Wei, X. Lan, Y. Zhang, S. Wu, J. Fan, H. Xiao, "Coaxial cable Bragg grating sensors for large strain measurement," Proceeding of 57th Int'l Instrumentation Symposium, 20-24 June 2011, St. Louis, MO, USA.
64. Y. Zhang, E. Pienkowski, T. Wei, J. Huang, H. Xiao, "Concentrically symmetric hollow core interferometer for common path optical coherence tomography," Proceeding of 57th Int'l Instrumentation Symposium, 20-24 June 2011, St. Louis, MO, USA

## **PATENTS**

1. Chen Zhu, Rex Gerald, Jie Huang, "Novel Chemical Detector Based on Phase-Interrogated Ultra-sensitive Microwave Resonance," U.S. Provisional Patent Application 62/993,277
2. Tao Wei, Jie Huang, "Methods and Apparatus for Identifying Transmission Line Via Its Fingerprint-Like Impedance Inhomogeneity" U.S. Patent Application #62/801,920
3. Chen Zhu, Jie Huang, "Truly Distributed Coaxial Cable Sensing Based on Random Inhomogeneities" U.S. Patent Application # 62/797,850
4. Chi, Lingyu, Ming Huang, II Rex E. Gerald, Jie Huang, Annalise R. Pfaff, and Klaus Woelk. "In Situ NMR Parameter Monitoring Systems and Methods for Measuring PH and Temperature." U.S. Patent 10,295,487 issued in May 2019
5. Rui Bo and J. Huang, "Real-time overhead powerline monitoring", 62/607,215, Provisional patent filed.

6. R. Gerald II, K. Woelk, and J. Huang, S. Herndon, and R. Block. "Acupuncture Magnetic Resonance Imaging Probe and Methods of Use." Provisional patent filed.
7. R. Gerald II, K. Woelk, and J. Huang. "Tri-Axial Toroid Cavity Detector Magnetic Resonance Imaging Probe and Methods of Use." Invention disclosure filed.
8. H. Xiao, J. Huang, X. Lan, "Optical carrier based microwave interferometric system and method," US Patent 20, 140, 340, 671 (2014).
9. H. Xiao, J. Huang, X. Lan, M. Luo, "Distributed microwave Fabry-Perot interferometers device and method for sensing applications," US Patent 9,534,937.
10. J. Yu, X. Pi, J. Huang, "Sensor based on coaxial Bragg grid," CN103398730A, 2013.

### **INVITED SEMINARS**

1. M. Roman and J. Huang, "Fiber-Optic Sensors for the Steelmaking Industry", Center for Infrastructure Engineering Studies (CIES), Missouri S&T, January 2021.
2. J. Huang. "Fundamental Understanding of Acute Traumatic Brain Injuries through Large-Scale Data Acquisition of Impact Events from Optical Fiber Sensor Equipped Smart Helmets Processed using Machine Learning" AENC Virtual Concussion Conclave, Sept. 2020
3. J. Huang. "Fiber optic sensors for industrial applications" IEEE St. Louis section Keynote Speech, St. Louis, Nov. 2019
4. J. Huang. "Fiber Optics in Helmets" AENC 2019 Concussion Conclave, Waynesville medical plaza, MO April 2019
5. J. Huang. "Mild Traumatic Brain Injury Monitoring through Hair-like Pressure-Sensor-equipped Smart Helmets" AENC 2018 Concussion Conclave, Waynesville medical plaza, MO March 2018
6. M. Roman and J. Huang, "Fiber-optic Electric Field Sensing", Research on Tap lecture series hosted by the Graduate Student Leadership Council in the College of Arts, Sciences, and Business (CASB), Missouri S&T, Rolla Public House, October 2018.
7. J. Huang. "Optical and microwave interferometric sensors for civil engineering applications" Missouri Department of Transportation, Dec 2017
8. J. Huang. "Optical fiber sensors in Steel-making industry", Nucor Castrip, Sept. 2017
9. J. Huang. "Optical fiber chemical sensors." Department of Chemistry, University of South Florida, Dec 2016.
10. J. Huang. "Fiber Optic Based Sensor Developments" PSMRC (Peaslee Steel Manufacturing Research Center) industry meeting, Matt's Steakhouse, May 2016
11. J. Huang. "Read optical interferometers in microwave domain." Department of Material Science and Engineering, Missouri S&T, March 2016

## **PROFESSIONAL SERVICES**

### **JOURNAL EDITORS**

- Sensors: Associate Editor

### **AD-HOC REVIEWER FOR JOURNALS**

- Optics Letters
- Optics Express
- Optical Material Express
- Photonics Technology Letters
- Journal of the Optical Society of America A
- Journal of the Optical Society of America B
- Applied Optics
- Sensors and Actuators A: Physical
- Sensors and Actuators B: Chemical
- Review of Scientific Instrument
- Measurement Science and Technology
- Materials Science and Engineering: C
- Optical Engineering
- Sensors
- Journal of Physics D: Applied Physics
- Applied Physics Letters
- Applied Physics Express
- IEEE Sensors Journal
- IEEE Transactions on Instrumentation and Measurement
- IEEE Transactions on microwave theory and techniques
- IEEE Transactions on Electromagnetic Compatibility
- Chinese Optics letters

### **PROPOSAL REVIEW**

- University of Missouri Research Board: (2015)
- NSF Graduate Fellowship panelist (2016)
- NSF ECCS panel (2018)
- DOD SMART Scholarship Panel Review (2018)
- USDOT University Transportation Center for Region 8 (2018)
- NIH U01 Review panel (2020)
- NSF STTR/SBIR review panel (2020)
- NIH U01 Review panel (2021)

### **PROGRAM COMMITTEE**

- **International Scientific Committee:** 9th International Conference on Structural Health Monitoring of Intelligent Infrastructure, St. Louis 2019

- **Session Chair:** fiber optic sensors session, 9th International Conference on Structural Health Monitoring of Intelligent Infrastructure, St. Louis 2019
- **Invited Panelist:** Pathways to Academia Session, IEEE-HKN Experience Virtual Conference, 8 October - 7 November 2020.

## INSTITUTIONAL SERVICES

### DEPARTMENT LEVEL

- **Search Chair:** ECE NTT Assistant Research Professor Search Committee 2018
- **Committee member:** ECE Assistant Professor Search Committee 2019
- **Search Chair:** ECE NTT Research Professor Search Committee 2019
- **Committee member:** ECE Postdoctoral Researcher Search Committee 2019
- **Search Chair:** ECE NTT Assistant Research Professor Search Committee 2020

### CAMPUS LEVEL

- Advisor: Engineering Freshmen Advising Program at Missouri S&T (2015-present)
- IEEE Optics Emphasis Workshop for MS&T IEEE Student Branch (April 2016, October 2016, January 2017)
- Annual ISC Poster Presentation judge (2015-2016, 2016-2017, 2017-2018, 2018-2019)
- The Chancellor's Kummer Institute (\$300 million donation) Faculty Advisory Panel (2020-present)
- Missouri S&T CEC Emerging Research Committee (2020-present)
- Search Committee member: Distinguished Professor and Founding Director of the Kummer Institute Center for Advanced Manufacturing

## PROFESSIONAL MEMBERSHIPS

- Member, Optical Society of America (OSA)
- Senior Member, Institute of Electrical and Electronic Engineers (IEEE)
- Member, Society of Photo-Optical Instrument Engineers (SPIE)
- Member, IEEE Instrumentation and Measurement Society (IEEE-IMS)
- Member, American Society for Nondestructive Testing (ASNT)
- Member, Omicron Delta Kappa (ODK), the National Leadership Honor Society
- Invited Member, Phi Kappa Phi, the National Leadership Honor Society
- Member, Missouri S&T HKN chapter
- Invited Member, Sigma Xi

## ADVISEES

### NTT RESEARCH PROFESSOR (2 CURRENT)

- Dr. Rex E. Gerald II (NTT Research Professor)

- Dr. Chen Zhu (NTT Assistant Research Professor)

**POST-DOC (2 CURRENT)**

- Dr. Yan Tang
- Dr. Nagesh Lalam

**RESEARCH AIDE (1 CURRENT)**

- Ryan O'Malley

**PH.D. STUDENTS (9 CURRENT)**

- Muhammad Roman
- Peter Holtmann
- Wassana Naku
- Bohong Zhang
- Jing Guo
- Dinesh Reddy Alla
- Nahideh Salehifar
- Tao Liu (Co-advised with Dr. Ming C. Leu)
- Taihao Han (Co-advised with Dr. Aditya Kumar)

**M.S. STUDENTS (2 CURRENT)**

- Peter Holtmann
- Abhishek Prakash Hungund
- Ogbole Collins Inalegwu

**UNDERGRADUATE STUDENTS (6 CURRENT)**

- Jiaqi Chen (Summer Intern)
- Hui Ji (Summer Intern)
- Jasser Estrada
- Jared Floyd (Summer Intern)
- Chanadda Subdee (OURE)
- Matthew J. Kaufman (Summer intern)
- Julia White (OURE) <https://news.mst.edu/2018/03/missouri-st-undergraduates-to-exhibit-research-to-state-legislators-3/>
- Makeda W. Beyene (OURE)

**TEMPORARY TECHNICAL (4 CURRENT)**

- Christina Woelk
- Arik Trotnic
- Matthew Parker
- Trevor Brown
- Alex Strength

#### **PH.D. DISSERTATION COMMITTEE**

- Xiang Gao, “Using Wireless Sensors and Networks program for Chemical Particle Propagation Mapping and Chemical Source Localization.” 2016
- Shanshan Bi, “Data Analytics for Stochastic Control and Prognostics in Cyber-physical Systems.” 2016
- Yizheng Chen, “Long-period Fiber Grating Corrosion Sensors for Life-cycle monitoring and Assessment of Reinforced Concrete Structures.” 2016
- Wenbin Li, “Freeform Extrusion Fabrication of Advanced Ceramics and Ceramic-Based Composites.” 2018
- Zahra Manzoor, “Design and Prototyping of a Real-Time Millimeter Wave Imaging System.” 2019
- Chuanrui Guo, “Long Period Fiber Grating, Thin Coating of Graphene and Silver Nanowires, and Corrosion Sensing for Life-Cycle Assessment of Steel Structures” 2019
- Mahboobeh Mahmoodi, “Frequency Selective Surface-Based Sensing: Theory and Applications.” 2020
- Vishal G Saravade, “Investigation of Wide Bandgap Semiconductors for Room Temperature Spintronic, and Photovoltaic Applications.” 2020
- Hamad A. Alharkan, “Adaptive Dynamic Programming Methods for Tracking Current Control of Switched Reluctance Motor Drive.” 2021

#### **SENIOR DESIGN PROJECT ADVISOR**

- William Castillo, Nicholas Fouche, and Alex Porter. “Miniature Radar Assembly.” 2016
- Joshua Breedlove, Darian Neal, Girma Tulu, and Ephrem Belihu. “Wireless Charging Table.” 2018
- Darrin Cornelison, Scott England, Jose Hernandez, Riley Maersch, and Evan Miller. “Automatic Gas Shutoff.” 2019
- David Wester, Han Diep, Sam Short, Levi Vieth, and Andrew Wanamaker. “Project chicken.” 2020

### **FORMER ADVISEES**

#### **NTT RESEARCH PROFESSOR**

- Dr. Qingbo Yang, 2018-2020 (Placement: Assistant professor at Lincoln University of Missouri)

#### **POST-DOC**

- Dr. Yang Du, 2016-2017 (Placement: Assistant professor at Tianjin Normal University)

**THESIS PH.D. STUDENTS**

- Chen Zhu (Placement: Assistant Research Professor at Missouri S&T)
  - Thesis: Fiber-optic and Coaxial-cable Extrinsic Fabry-Perot Interferometers for Sensing (2016-2021)
- Yiyang Zhuang (Placement: Assistant Professor at Zhejiang University)
  - Thesis: Fiber Optic Sensors for Industry and Military Applications (2015-2021)

**THESIS M.S. STUDENTS**

- Xiaotong Tang
  - Thesis: Coaxial cable ring resonator based on pair sided coaxial cable Bragg grating coupler for sensing application (2017-2019)
- Yiyang Zhuang (Placement: Ph.D. candidate at Missouri S&T)
  - Thesis: Embedded Fiber Optic Sensors For Temperature Monitoring Of Continuous Casting Mold (2015-2017)
- Mohammed Farhan Ahmed (Placement: Ansys HFSS, Boulder, CO)
  - Thesis: Development of Hollow Coaxial Cable Fabry-Perot Resonator for High-Temperature Sensing Applications (2015-2017)
- Sasi Jothibasu (Placement: ZF TRW Automotive, Livonia, MI)
  - Thesis: Distributed fiber optic sensors for monitoring strain and refractive index using optical frequency domain reflectometry (2015-2017)
- Bohong Zhang (Placement: Ph.D. candidate at Missouri S&T)
  - Thesis: A Simple Background Elimination Method for Miniaturized Fiber-Optic Raman Probes (2018-2021)