

Jonathan Hu, PhD

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EDUCATION / TRAINING	Princeton University , Princeton, NJ Research Associate, Department of Electrical Engineering	2009 – 2011
	University of Maryland Baltimore County , Baltimore, MD PhD, Department of Computer Science and Electrical Engineering	2008
PROFESSIONAL EXPERIENCE	Full time position Professor Associate Professor Assistant Professor Baylor University	2023 – Present 2017 – 2022 2011 – 2016
	Part time position Adjunct Associate Professor University of Maryland, Baltimore County Visiting Scholar Texas A&M University	2022 – present 2017 – 2019
AWARDS / HONORS	<ul style="list-style-type: none">• Baylor Outstanding Faculty for Scholarship (2022)• Baylor Fellow (2018)• Baylor Young Investigator Development Award (2015)• Baylor OVPR Proposal Development Award (2015)• Baylor Rising Star (2014)• Baylor ECS Research Initiation Award (2014)• KEEN Innovator Award, Kern Family Foundation, (2014)	
RESEARCH INTERESTS	Photonic crystal fiber, chalcogenide glass fiber, mid-IR supercontinuum generation, nanophotonics, surface plasmon, metamaterial, 2-D material, transition metal dichalcogenide, light-emitting diode (LED), electromagnetic wave, solar cell, nonlinear optics, optical communication, simulation, and modeling	
TEACHING	Baylor University <ul style="list-style-type: none">• EGR 1302: <i>Introduction to engineering analysis</i> (3 cr) Spring 2012, Spring 2014, Spring 2017, Fall 2021• ELC 2330: <i>Electrical Circuit Theory</i> (3 cr) Fall 2017, Spring 2018, Spring 2020, Fall 2020, Spring 2021, Spring 2022. Spring 2023, Spring 2024• ELC 3335: <i>Signals and Systems</i> (3 cr) Fall 2011, Fall 2012, Spring 2013, Fall 2013, Fall 2014, Spring 2015, Fall 2015, Spring 2016, Fall 2016, Spring 2018• ELC 3337: <i>Applied Electromagnetic Fields</i> (3 cr) Fall 2023, Fall 2024	

- **ELC 4320:** *Introduction to Optics* (3 cr)
Fall 2012, Fall 2013, Fall 2014, Fall 2015, Fall 2016, Fall 2017, Fall 2018, Fall 2020, Fall 2021, Spring 2023, Spring 2024
- **EGR 4390:** *Engineering Design II* (3 cr)
Spring 2019
- **ELC 5321:** *Computational Photonics* (3 cr)
Spring 2013, Spring 2015, Spring 2019, Spring 2021, Spring 2022
- **ELC 5322:** *Integrated Photonics* (3 cr)
Spring 2014, Spring 2016, Spring 2017, Fall 2018, Spring 2020
- **ELC 5336:** *Advanced Engineering Electromagnetics* (3 cr)
Fall 2022

Baylor University (Provost’s Faculty Forum)

Presentation

- Connecting research and teaching for an entrepreneurial mindset Fall 2019

Baylor University (Graduate School)

- Success Faculty Mentor Training 2023–24

Baylor University (KEEN Innovators Faculty Development Workshop)

Attended workshops

- KEEN Leader Orientation Fall 2023
- Faculty-Industry Relationships (FIRE) Summer 2019
- CATME SMARTER Teamwork Fall 2017
- Project-based learning, objectives, and assessment Spring 2017
- Changing Student Learning Through Project-Based Learning Fall 2016
- Effective Thinking Through the Sciences, Engineering, and Mathematics Fall 2015
- Evidence-Based Assessment, Leading the Discussion-Oriented Class Spring 2015
- Integrating the entrepreneurial mindset into courses Fall 2014

Princeton University (McGraw Center for Teaching and Learning)

Attended short courses and workshops

- Master Class on Lecturing (limited to 12 people per year) Spring 2011
- Engaging Students, Enhancing Participation Fall 2010
- The Scholar as Teacher Spring 2010

PROFESSIONAL
SERVICES

Proposal panelist/reviewer

- U.S. National Science Foundation (NSF)
Engineering Research Center (2011)
Gen-4 GenEngineering Research Center (2024)
Division of Electrical, Communications and Cyber Systems (ENG/ECCS) (2012/2015/2023)
Graduate Research Fellowships Program (GRFP) (2015/2019)
Addressing Systems Challenges through Engineering Teams (ASCENT) (2021)
- U.S. Department of Energy Basic Energy Sciences (DOE-BES) SBIR (2021)
- Natural Sciences and Engineering Research Council of Canada (NSERC) (2009,2020)
- U.S. National Telecommunications and Information Administration (NTIA)
- Ralph E. Powe Junior Faculty Enhancement Awards Program (2014–2017)
- NASA Postdoctoral Program (2014, 2015)
- National Defense Science and Engineering Graduate (NDSEG) Fellowship Program (2016–2017)

Journal

- Associate Editor for Optics Express (2024–Present)
- Co-lead Editor of a feature issue in Optical Materials Express (OPTICA) “Novel Optical Materials and Applications (NOMA)” (2025)
- Guest Editor of a feature issue in Journal of Optical Society of America B (OSA) “Specialty Optical Fiber Modeling, Fabrication, and Characterization” (2021)

Conference

- Program chair for Novel Optical Materials and Applications (NOMA) Conference in OPTICA Advanced Photonics Congress (2023,2024)
- Co-Chair for Symposium on Machine Learning and Autonomous Design for Photonic Devices in Advanced Photonics Congress (2022)
- Co-Chair for Mid-Infrared Photonics in IEEE Summer Topical Meetings (2015)
- Co-Chair for Photonic Track in Texas Symposium on wireless and Microwave Circuits and Systems (WMCS 2017)
- Local Arrangement Chair for Texas Symposium on wireless and Microwave Circuits and Systems (WMCS 2012, 2013, 2014, 2015, 2016)
- Program committee for
Workshop on Microstructured optical fibers (MOF) in International Conference on Transparent Optical Networks (ICTON) Bari, Italy, July 14-18, 2024.
Novel Optical Materials and Applications (NOMA) Conference in OSA Advanced Photonics Congress (2018–2022)
Asia Communications and Photonics Conference (ACP) (2021) Track: Optical Fibers, Fiber-based Devices
Workshop on Microstructured optical fibers (MOF) in International Conference on Transparent Optical Networks (ICTON) Bari, Italy, July 19-23, 2020.
International Conference on Advanced Infocomm Technology (ICAIT 2019, 2020)
Texas Symposium on Wireless and Microwave Circuits and Systems (WMCS 2015–2019, 2022)
IEEE International Conference on Electro/Information Technology (EIT 2012)
- Session Chair
Novel Optical Materials and Applications (NOMA) Conference in OPTICA Advanced Photonics Congress (2021–2024)
Frontier in Optics/Laser Science Conference (FIO 2008)
IEEE Summer Topical Meeting Mid-Infrared Photonics (2015)
Texas Symposium on wireless and Microwave Circuits and Systems (WMCS 2013, 2015, 2016)
- Event host
OSA Fiber Modeling and Fabrication Technical Group Poster Session (Advanced Photonics Congress 2021)

OPTICA (formerly OSA) committee

- Vice Chair for OPTICA (Formerly OSA) technical group: Fiber Modeling and Fabrication (FF) Group (2019–2024)
- Events Officer of Fiber Modeling and Fabrication (FF) Group (2017-2018)
- OSA Joseph Fraunhofer Award/Robert M. Burley Prize Committee (2020–2022)

University Committee

- ABET Committee (2024–2025)
- Quantum Materials Synthesis Faculty Search Committee (2023–2024)
- Selection Committee for Outstanding Professors (2023–2026)
- KEEN Leadership Committee (2022–present)
- Dean Search Committee 2021–2022
- Carlile Chair and Mearse Chair Search Committee 2020–2021

- Undergraduate Research and Scholarly Achievement (URSA) Steering Committee (2017–2021)
- ECE Graduate Committee (2012–present)

Award Reviewer

- The NSERC Donna Strickland Prize 2021

Book reviewer

- *Springer*
- *CRC Press*
- *Wiley*

Community Service/training

- Training workshop, NSF national I-Corps (February 19, 2025 – April 10, 2025)
- Training workshop, NSF regional I-Corps Southwest Hub (August 19, 2024 – September 6, 2024)
- Judge, FTC - Waco League Tournament (January 20, 2024)
- Judge, Central Texas Science and Engineering Fair (CTSEF) (February 14, 2023)
- Judge, Central Texas Science and Engineering Fair (CTSEF) (February 24, 2015)
- Judge, BEST Robotics, (2012)

Publication reviewer

Light: Science & Applications, Nature Communications, ACS Nano, ACS Applied Materials & Interfaces, Advanced Optical Materials, Nanoscale, Optics Letters, Optics Express, Optical Materials Express, Journal Of Computational Physics, Journal of Optical Society of America B, Applied Optics, Photonics Technology Letters, Journal of Lightwave Technology, Journal of Quantum Electronics, journal of Selected Topic of Quantum Electronics, Photonics Journal, APL Photonics, Nano Research, IEEE Access, Optics Communications, Chinese Optics Letters, Nonophotonics, Journal of Physical Chemistry Letters, Fiber and Integrated Optics, Journal of Modern Optics, International Journal of Optics, Applied Sciences, Fibers, Waves in Random and Complex Media, and Crystals

- BOOK CHAPTERS
1. **J. Hu** and C. R. Menyuk, “Chalcogenide Glass Fibers for Mid-IR Supercontinuum Generation,” Chap. 13 in “The Supercontinuum Laser Source,” Ed. R. R. Alfano, Springer, 4th ed. (2022).
 2. C. Wei, C. R. Menyuk, and **J. Hu** “Geometry of Chalcogenide Negative curvature fibers for CO₂ laser transmission,” Chap. 7 in “Hollow Core Optical Fibers,” Ed. W. Belardi, MDPI, pp. 120–128, (2019).

PATENTS

1. **J. Hu** and C. Menyuk “A mid-infrared cascading fiber amplifier and method for amplification,” patent US 10,164,399
2. **J. Hu**, L. Dong, and Y. Li “Modeling wireless signal strength within a defined environment,” patent US 10,506,449
3. L. Dong, **J. Hu**, and Y. Li “Virtual wireless network,” patent US 11,211,998

JOURNAL PUBLICATIONS

1. W. Zhang, R. Gattass, L. B. Shaw, C. R. Menyuk, and **J. Hu**, “Maximizing the FWM conversion efficiency in a PCF with a randomly varying pitch,” *J. Opt. Soc. Am. B* **41**, 2408-2413 (2024).
2. C. Tu, Z. Hu, **J. Hu**, C. R. Menyuk, T. F. Carruthers, L. B. Shaw, L. E. Busse, and J. S. Sanghera, “Optimized two-layer random motheye structures for SiO₂ windows,” *Opt. Continuum* **3**, 1722–1731 (2024).

3. W. Zhang, R. A. Lane, C. R. Menyuk, and **J. Hu**, “Modeling heat mitigation in hollow-core gas fiber lasers with gas flow,” *IEEE J. Sel. Top. Quantum Electron.* **30**, 1-8 (2024). (**invited**).
4. Z. Jiang, B. Ko, K. R. Berry, X. Xing, Z. Yi, A. V. Sokolov, **J. Hu**, J. Bao, and Z. Zhang, “Synergistic effect of laser, water vapor, and electron-beam on the degradation of quasi-two-dimensional Ruddlesden-Popper perovskite flakes,” *ACS Omega* **9**, 35744-35756 (2024).
5. J. T. Young, C. R. Menyuk, and **J. Hu**, “SBS suppression using PRBS phase modulation with different orders,” *Opt. Express* **31**, 18497–18508 (2023).
6. W. Lu, H. Zhu, B. Birmingham, N. Craft, **J. Hu**, K. Park, Z. Zhang, “Phase transition of individual anatase TiO₂ microcrystals with large percentage of (001) facets: a Raman mapping and SEM study,” *Phys. Chem. Chem. Phys.*, **25**, 3199-3210 (2023).
7. J. T. Young, A. J. Goers, D. M. Brown, M. L. Dennis, K. Lehr, C. Wei, C. R. Menyuk, and **J. Hu**, “Tradeoff between the Brillouin and transverse mode instabilities in Yb-doped fiber amplifiers,” *Opt. Express* **30**, 40691–40703 (2022).
8. B. Orta, D. Jain, R. Jha, **J. Hu**, and B. Ung, “Specialty optical fiber modeling, fabrication, and characterization: introduction,” *J. Opt. Soc. Am. B* **39**, SOF1-SOF2 (2022).
9. B. A. Ko, K. Berry, Z. Qin, A. V. Sokolov, **J. Hu**, M. O. Scully, J. Bao, and Z. Zhang, “Resonant degenerate four-wave mixing at the defect energy levels of 2D organic-inorganic hybrid perovskite crystals,” *ACS Appl. Mater. Interfaces* **13**, 57075-57083 (2021). (**impact factor: 9.229**)
10. F. Han, C. Wei, **J. Hu**, J. Shi, and X. Feng, “Highly coherent visible supercontinuum generation in a micrometer-core borosilicate glass photonic crystal fiber,” *J. Opt. Soc. Am. B* **38**, F145–F151 (2021).
11. J. T. Young, C. Wei, C. R. Menyuk, and **J. Hu**, “Mode coupling at avoided crossings in slab waveguides with comparison to optical fibers: tutorial,” *J. Opt. Soc. Am. B* **38**, F104–F114 (2021).
12. F. Lin, A. N. Quraishy, R. Li, G. Yang, M. Mohebinia, T. Tong, Y. Qiu, T. Vishal, J. Zhao, W. Zhang, H. Zhong, H. Zhang, C. Zhou, X. Tong, P. Yu, **J. Hu**, S. Dong, D. Liu, Z. Wang, J. R. Schaibley, J. Bao, “Molding, patterning and driving liquids with light,” *Mater. Today* **51**, 48–55 (2021) (Highlighted paper **impact factor: 31.04**)
13. F. Lin, A. N. Quraishy, T. Tong, R. Li, G. Yang, M. Mohebinia, Y. Qiu, T. Vishal, J. Zhao, W. Zhang, H. Zhong, H. Zhang, Z. Chen, C. Zhou, X. Tong, P. Yu, **J. Hu**, S. Dong, D. Liu, Z. Wang, J. R. Schaibley, J. Bao, “Marangoni convection-driven laser fountains on free surfaces of liquids,” *Mater. Today Phys.* **21**, 100558, (2021). (**impact factor: 9.298**)
14. C. Tu, **J. Hu**, C. R. Menyuk, T. F. Carruthers, L. B. Shaw, L. E. Busse, and J. S. Sanghera, “Optimized two-layer motheye structures for MgAl₂O₄ spinel ceramic windows,” *OSA Continuum* **4**, 2143–2153 (2021).
15. C. R. Menyuk, J. T. Young, **J. Hu**, A. J. Goers, D. M. Brown, and M. L. Dennis, “Accurate and efficient modeling of the transverse mode instability in high energy laser amplifiers,” *Opt. Express*, **29**, 17746–17757 (2021).
16. Z. He, W. Qiu, M. E. Kizer, J. Wang, W. Chen, A. V. Sokolov, X. Wang, **J. Hu**, and M. O. Scully, “Resolving the Sequence of RNA Strands by Tip-Enhanced Raman Spectroscopy,” *ACS Photonics*, **8**, 424-430 (2021). (**Journal cover: ACS Photonics, February 17, 2021**)
17. Q. Zhang, Y. Qiu, F. Lin, C. Niu, X. Zhou, Z. Liu, M.K. Alam, S. Dai, W. Zhang, **J. Hu**, Z. Wang, and J. Bao, “Photoacoustic identification of laser-induced microbubbles as light scattering centers for optical limiting in a liquid suspension of graphene nanosheets,” *Nanoscale* **12**, 7109–7115, (2020).

18. S. Yue, G.A. Gamage, M. Mohebinia, D. Mayerich, V. Talari, Y. Deng, F. Tian, S.-Y. Dai, H. Sun, V.G. Hadjiev, W. Zhang, G. Feng, **J. Hu**, D. Liu, Z. Wang, Z. Ren, and J. Bao, “Photoluminescence mapping and time-domain thermo-photoluminescence for rapid imaging and measurement of thermal conductivity of boron arsenide,” *Mater. Today Phys.* **13**, 100194, (2020). (**impact factor: 10.443**)
19. F. Lin, C. Niu, **J. Hu**, Z. Wang and J. Bao, “Graphene Diamagnetism: Levitation, transport, rotation, and orientation alignment of graphene flakes in a magnetic field,” *IEEE Nanotechnol. Mag.* **14**, 14–22, (2020).
20. Md K. Alam, C. Niu, Y. Wang, W. Wang, Y. Li, C. Dai, T. Tong, X. Shan, E. Charlson, S. Pei, X.-T. Kong, Y. Hu, A. Belyanin, G. Stein, Z. Liu, **J. Hu**, Z. Wang, and J. Bao, “Large graphene-induced shift of surface-plasmon resonances of gold films: Effective-medium theory for atomically thin materials,” *Phys. Rev. Research* **2**, 013008, (2020).
21. Z. He, Z. Han, J. Yuan, A. M. Sinyukov, H. Eleuch, C. Niu, Z. Zhang, J. Lou, **J. Hu**, D. V. Voronine, M. O. Scully, “Quantum plasmonic control of trions in a picocavity with monolayer WS₂,” *Sci. Adv.* **5**, eaau8763 (2019). (**impact factor: 12.804**)
22. B. Birmingham, J. Yuan, M. Filez, D. Fu, **J. Hu**, J. Lou, M. O. Scully, B. M. Weckhuysen, and Z. Zhang, “Probing the effect of chemical dopant phase on photoluminescence of monolayer MoS₂ using in situ Raman microspectroscopy,” *J. Phys. Chem. C* **123**, 15738-15743 (2019).
23. C. Wei, J. T. Young, C. R. Menyuk, and **J. Hu**, “Temperature sensor based on liquid-filled negative curvature optical fibers,” *OSA Continuum* **2**, 2123-2130 (2019).
24. J. O. White, J. T. Young, C. Wei, **J. Hu**, and C. R. Menyuk, “Seeding fiber amplifiers with piecewise parabolic phase modulation for high SBS thresholds and compact spectra,” *Opt. Express* **27**, 2962–2974 (2019).
25. Z. He, Z. Han, M. Kizer, R. J. Linhardt, X. Wang, A. M. Sinyukov, J. Wang, V. Deckert, A. V. Sokolov, **J. Hu**, and M. O. Scully, “Tip-enhanced Raman imaging of single-stranded DNA with single base resolution,” *J. Am. Chem. Soc.* **141**, 753–757 (2019). (**impact factor: 14.357**)
(**Media coverage:** *Laser Focus World*, Mar. 1, 2019)
26. B. Birmingham, J. Yuan, M. Filez, D. Fu, **J. Hu**, J. Lou, M. O. Scully, B. M. Weckhuysen, and Z. Zhang, “Spatially-resolved photoluminescence of monolayer MoS₂ under controlled environment for ambient optoelectronic applications,” *ACS Appl. Nano Mater.* **1**, 6226-6235 (2018).
27. C. Wei, C. R. Menyuk, and **J. Hu**, “Geometry of chalcogenide negative curvature fibers for CO₂ laser transmission,” *Fibers* **6**, 74 (2018).
28. F. Lin, G. Yang, C. Niu, Y. Wang, Z. Zhu, H. Luo, C. Dai, Y. Hu, **J. Hu**, X. Zhou, Z. Liu, Z. M. Wang, and J. Bao, “Planar alignment of graphene sheets by a rotating magnetic field for full exploitation of graphene as a 2D material,” *Adv. Funct. Mater.* **28**, 1805255 (2018) (**impact factor: 13.325**)
29. C. Wei, C. R. Menyuk, and **J. Hu**, “Polarization-filtering and polarization-maintaining low-loss negative curvature fibers,” *Opt. Express* **26**, 9528–9540 (2018).
(**Media coverage:** *Advances in Engineering*, Dec. 24, 2018)
30. C. Niu, F. Lin, Z. M. Wang, J. Bao, and **J. Hu**, “Graphene levitation and orientation control using a magnetic field,” *J. Appl. Phys.* **123**, 044302 (2018). (**Editor’s Pick**)
31. C. Wei, R. J. Weiblen, C. R. Menyuk, and **J. Hu**, “Negative curvature fibers,” *Adv. Opt. Photon.* **9**, 504–561 (2017).
(**impact factor: 21.286**)
32. J. Bao, F. Lin, and **J. Hu**, “Graphene alignment technique holds promise for nanophotonics,” *Photonics Spectra*, **51**(2) 38–40 (2017).

33. F. Lin, Z. Zhu, X. Zhou, W. Qiu, C. Niu, **J. Hu**, Y. Wang, Z. Zhao, D. Litvinov, Z. Liu, Z. M. Wang, and J. Bao, "Orientation control of graphene flakes by magnetic field: broad device applications of macroscopically aligned graphene," *Adv. Mater.* **29**, 1604453 (2017).
(**impact factor: 21.950**)
(**Journal cover/Frontispiece: Adv. Mater. 1/2017**)
34. C. Wei, **J. Hu** and, C. R. Menyuk, "Comparison of loss in silica and chalcogenide negative curvature fibers as the wavelength varies," *Front. Phys.* **4**, 30 (2016).
35. Z. Zhu, J. Yuan, H. Zhou, **J. Hu**, J. Zhang, C. Wei, F. Yu, S. Chen, Y. Lan, Y. Yang, Y. Wang, C. Niu, Z. Ren, J. Lou, Z. Wang, and J. Bao, "Excitonic resonant emission-absorption of surface plasmon in transition metal dichalcogenides for chip-level electronic-photonics integrated circuits," *ACS Photonics*, **3**, 869–874 (2016).
(**Media coverage: Laser Focus World, Aug. 10, 2016**)
36. C. Wei, C. R. Menyuk, and **J. Hu**, "Impact of cladding tubes in chalcogenide negative curvature fibers," *IEEE Photon. J.* **8**, 2200509 (2016).
37. C. Wei, C. R. Menyuk, and **J. Hu**, "Bending-induced mode non-degeneracy and coupling in chalcogenide negative curvature fibers," *Opt. Express* **24**, 12228–12239 (2016).
38. **J. Hu**, C. R. Menyuk, C. Wei, L. B. Shaw, J. S. Sanghera, and I. D. Aggarwal, "Highly efficient cascaded amplification using Pr³⁺-doped mid-infrared chalcogenide fiber amplifiers," *Opt. Lett.* **40**, 3687–3690 (2015).
39. C. Wei, R. A. Kuis, F. Chenard, C. R. Menyuk, and **J. Hu**, "Higher-order mode suppression in chalcogenide negative curvature fibers," *Opt. Express* **23**, 15824–15832 (2015).
40. C. Niu, T. Huang, X. Zhang, H. Liu, W. Zhang, **J. Hu**, "Impact of a dielectric layer on the resonant conditions of nanograting structures," *Plasmonics*, **10**, 419–427 (2015).
41. J. J. Butler, A. S. Bowcock, S. R. Sueoka, S. R. Montgomery, S. R. Flom, E. J. Friebele, B. M. Wright, J. R. Peele, R. G.S. Pong, J. S. Shirk, **J. Hu**, C. R. Menyuk, and T. F. Taunay, "Optical properties of solid-core photonic crystal fibers filled with nonlinear absorbers," *Opt. Express* **21**, 20707–20712 (2013).
42. **J. Hu**, Y.-P. Huang, and P. Kumar "Self-stabilized quantum optical Fredkin gate," *Opt. Lett.* **38**, 522–524 (2013).
43. **J. Hu**, C. R. Menyuk, L. B. Shaw, J. S. Sanghera, and I. D. Aggarwal, "A mid-IR source with increased bandwidth using tapered As₂S₃ chalcogenide photonic crystal fibers," *Opt. Commun.* **293**, 116-118(2013).
44. **J. Hu** and C. Gmachl, "QCL-based sensors target health and environmental applications," *Laser Focus World*, **48** 38-43, (2012).
45. **J. Hu** and C. Gmachl, "Quantum cascade lasers enhance mid-IR Spectroscopy," *Photonics Spectra*, **45** 48-50, (2011)
46. W. Zhang, F. Ding, W.-D. Li, Y. Wang, **J. Hu** and S. Y Chou, "Giant and uniform fluorescence enhancement over large areas using plasmonic nanodots in 3D resonant cavity nanoantenna by nanoimprinting," *Nanotechnology*, **23** 225301, (2012).
47. W. Li, **J. Hu**, and S. Y. Chou, "Extraordinary light transmission through opaque thin metal film with subwavelength holes blocked by metal disks," *Opt. Express* **19**, 21098-21108 (2011).
48. W. Li, F. Ding, **J. Hu**, and S. Y. Chou, "Three-dimensional cavity nanoantenna coupled plasmonic nanodots for ultrahigh and uniform surface-enhanced Raman scattering over large area," *Opt. Express* **19**, 3925-3936 (2011).
(**Media coverage: ScienceDaily Mar. 22, 2011**)
(**Media coverage: Photonics.com Light Matters #104 Mar. 23, 2011**)

49. R. J. Weiblen, A. Docherty, **J. Hu**, and C. R. Menyuk, “Calculation of the expected bandwidth for a mid-infrared supercontinuum source based on As_2S_3 chalcogenide photonic crystal fibers,” *Opt. Express* **18**, 26666–26674 (2010).
50. **J. Hu**, C. R. Menyuk, L. B. Shaw, J. S. Sanghera, and I. D. Aggarwal, “Computational study of a 3–5 μm source that is created by using supercontinuum generation in As_2S_3 chalcogenide fibers with a pump at 2 μm ,” *Opt. Lett.* **35**, 2907–2909 (2010).
51. **J. Hu**, C. R. Menyuk, L. B. Shaw, J. S. Sanghera, and I. D. Aggarwal, “Maximizing the bandwidth of supercontinuum generation in As_2Se_3 chalcogenide fibers,” *Opt. Express* **18**, 6722–6739 (2010).
(**Figure appeared in the issue cover page**)
52. **J. Hu** and C. R. Menyuk, “Understanding leaky modes: Slab waveguide revisited,” *Adv. Opt. Photon.* **1**, 58–106 (2009).
(**Top three downloads in three consecutive months after publication in OSA**)
53. **J. Hu** and C. R. Menyuk, “Optimization of the operational bandwidth in air-core photonic bandgap fibers for IR transmission,” *Opt. Commun.* **282**, 18–21 (2009).
54. **J. Hu** and C. R. Menyuk, “Leakage loss and bandgap analysis in air-core photonic bandgap fiber for nonsilica glasses,” *Opt. Express* **15**, 339–349 (2007).
55. P. Griggio, **J. Hu**, J. Wen, G. E. Tudury, J. Zweck, B. S. Marks, L. Yan, G. M. Carter, and C. R. Menyuk, “Characterizing pattern dependence in transmitters and receivers for modeling optical communication systems,” *Opt. Commun.* **272**, 107–110 (2007).
56. **J. Hu**, B. S. Marks, C. R. Menyuk, J. Kim, T. F. Carruthers, B. M. Wright, T. F. Taunay, and E. J. Friebele, “Pulse compression using a tapered microstructure optical fiber,” *Opt. Express* **14**, 4026–4036 (2006).
57. J. Kim, U-C. Paek, B. H. Lee, **J. Hu**, B. Marks, and C. R. Menyuk, “Impact of interstitial air holes on a wide bandwidth rejection filter made from a photonic crystal fiber,” *Opt. Lett.* **31**, 1196–1198 (2006).
58. G. E. Tudury, **J. Hu**, B. S. Marks, A. S. Lenihan, C. R. Menyuk, and G. M. Carter, “Gain characteristics of a 210-km hybrid Raman/EDFA amplified fiber loop,” *Opt. Commun.* **261**, 152–157, (2006).
59. **J. Hu**, B. S. Marks, Q. Zhang, and C. R. Menyuk, “Modeling backward-pumped Raman amplifiers,” *J. Opt. Soc. Am. B* **22**, 2083–2090, (2005).
60. **J. Hu**, B. S. Marks, and C. R. Menyuk, “Flat-gain fiber Raman amplifiers using equally spaced pumps,” *J. Lightwave Technol.* **22**, 1519–1522, (2004).

REFEREED
CONFERENCE
PROCEEDINGS

1. J. Young, Z. Hu, C. Menyuk, **J. Hu**, “Modeling Transverse Mode Instability Experiment Using Phase-Matched Model,” in Proc. Advanced Photonics Congress, Qubec City, Canada, paper SoW2F.1, (2024).
2. W. Zhang, F. Lin, **J. Hu**, Z. Wang, and J. Bao, “Laser-induced liquid deformation driven by the Marangoni effect,” in Proc. Advanced Photonics Congress, Busan, South Korea, paper JTU4A.1, (2023).
3. J. T. Young, M. Pucket, L. Courtright, P. H. Shandilya, G. Keber, S. Cundiff, J. Wu, K. D. Nelson, C. Hoyt, **J. Hu**, and C. R. Menyuk, “Soliton Glasses in Fabry-Perot Resonators,” in Proc. Conference on Lasers and Electro-Optics (CLEO), San Jose, CA, paper FW3B.8, (2023).
4. G. Kerber, M. Puckett, J. Wu, K. Nelson, L. Courtright, J. Young, P. Shandilya, Chad Hoyt, **J. Hu**, C. Menyuk, S. Cundiff, “Spectral Phase Dispersion Measurements in Frequency Comb Generating Linear Microresonator,” in Proc. Conference on Lasers and Electro-Optics (CLEO), San Jose, CA, paper JW2A.80, (2023).

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6. C. Wei, C. R. Menyuk, and J. Hu, "Directional Bending Sensor Using Negative Curvature Fibers with Asymmetric Nested Cladding Tubes," IEEE Photonics Conference (IPC), Vancouver, Canada, paper WG1.4 (2022).
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SEMINAR
PRESENTATION

1. Gwangju Institute of Science and Technology, July. 14, 2023
2. LeTourneau University, science seminars, Jan. 20, 2023
3. San Francisco State University, Physics & Astronomy Colloquium , Sep. 28, 2020
4. Baylor Summer Faculty Institute, *Scholarly productivity and writing*, May 30, 2019
5. Baylor Provosts Faculty Forum Oct. 9, 2018
6. Baylor-IQSE seminar Jan. 31, 2018

7. The Institute for Quantum Science and Engineering, Texas A&M U., Mar. 8, 2017
8. Nanjing University, Dec. 21, 2016
9. Zhejiang University of Technology, Dec. 19, 2016
10. Physics Colloquium Series, Baylor University, Jan. 30, 2013
11. Northwestern University, Sep. 4, 2012
12. Institute of Modern Optics, Nankai University, China, Dec. 29, 2011
13. Tianjin University, China, Dec. 28, 2011
14. eBEARS, Baylor University, Nov. 9, 2011
15. Dept. of Optical Engineering seminar, Zhejiang University, China, Dec. 29, 2010
16. Dept. of Electronic Engineering, Shanghai Jiao Tong University, China, Dec. 23, 2010
17. Bell Laboratories, Aug. 12, 2010
18. EMD seminar, Princeton University, Mar. 6, 2009
19. EE seminar, Northwestern University, Oct. 17, 2008
20. Radlab seminar, University of Michigan, Oct. 3, 2008
21. CSEE graduate seminar, UMBC, Oct. 10, 2006

OTHER
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ABSTRACT

1. **J. Hu**, J. T. Young, C. Menyuk, “Modeling Transverse Mode Instability in High-Power Amplifiers,” 7th Annual SIAM Conference Texas-Louisiana Section MS5 3/3 (2024). (invited)
2. Z. Hu, J. Young, C. Menyuk, and **J. Hu**, “Power threshold for fiber amplifiers with both the Brillouin and transverse mode instabilities,” 7th Annual SIAM Conference Texas-Louisiana Section, (2024).
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5. C. R. Menyuk, J. T. Young, E. Simsek, and **J. Hu**, “Efficient Computational Modeling of the Transverse Mode Instability Using the Phase-Matched Model,” Laser System Modeling & Simulation Workshop, March 14–16, (2023)
6. **J. Hu**, J. T. Young, and C. R. Menyuk, “Power Threshold in Fiber Amplifiers Considering Both the Transverse Mode and Brillouin Instabilities,” Laser System Modeling & Simulation Workshop, March 14–16, (2023)
7. J. T. Young, C. R. Menyuk, and **J. Hu** “Pump power threshold limitations in fiber amplifiers with both the Brillouin and transverse mode instabilities,” 2023 Annual DE S&T Symposium, March 22–26, (2023).
8. J. Young, C. R. Menyuk, and **J. Hu**, “Limitations of the power threshold for fiber amplifiers with both the Brillouin and transverse mode instabilities,” Fiber Lasers XX: Technology and Systems 12400, 124001T (2023).
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12. **J. Hu**, Z. He, A. V. Sokolov, X. Wang, and M. O. Scully, "Resolving the Sequence of DNA and RNA Strands by Tip-Enhanced Raman Spectroscopy," Proc. SPIE, Smart Photonic and Optoelectronic Integrated Circuits, paper 12005-7, Jan. 22-27, (2022) (**invited**).
13. C. R. Menyuk, J. T. Young, **J. Hu**, A. J. Goers, D. M. Brown, and M. L. Dennis, "Accurate and efficient modeling of the transverse mode instability in high-energy laser amplifiers using the phase-matched model", Proc. SPIE 11867, Technologies for Optical Countermeasures XVIII and High-Power Lasers: Technology and Systems, Platforms, Effects V, 118670B (12 September 2021); (**invited**).
14. J. T. Young, J. O. White, C. Wei, **J. Hu**, and C. R. Menyuk, "Suppression of the Brillouin instability using piecewise parabolic phase modulation techniques," 2021 Annual DE S&T Symposium March 22-March 26, (2021).
15. S. Yue, G. A. Gamage, M. Mohebinia, D. Mayerich, V. Talari, Y. Deng, F. Tian, S. DAI, H. Sun, V. G. Hadjiev, W. Zhang, G. Feng, **J. Hu**, D. Liu, Z. Wang, Z. Ren, J. Bao, "Photoluminescence mapping and time-domain thermo-photoluminescence for rapid imaging and measurement of thermal conductivity of boron arsenide," Bulletin of the American Physical Society (2021).
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20. M. Shutova, A. Sinyukov, W. Zhang, **J. Hu**, and A. Sokolov, "Plasmonic nanostructures for subwavelength focusing of light with twisted wavefront," TAMU-Princeton-Baylor Summer School on Quantum Science and Engineering, Casper, WY, Jul. 22-26, 2019
21. Z. He, Z. Han, M. Kizer, X. Wang, A. M. Sinyukov, A. V. Sokolov, **J. Hu**, M. O. Scully, "High-resolution plasmonic enhanced chemical mapping of RNA," The 49th Winter Colloquium on the Physics of Quantum Electronics, Snowbird, UT, January 15-16, (2019).
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35. **J. Hu**, "Modeling linear and nonlinear effect in nanostructure devices," 2015 OSA Nonlinear Metamaterials Incubator, Washington, DC, Sep. 30–Oct. 2, 2015
36. C. Wei, F. Chenard, C. R. Menyuk, and **J. Hu**, "Design of Chalcogenide Negative Curvature Fibers," 2015 IEEE Photonics Society Summer Topicals Meeting Series. Mid Infrared Photonics, Nassau, Bahamas, MP7, Jul. 13–15 (2015).
37. **J. Hu**, R. J. Weiblen, C. R. Menyuk, L. B. Shaw, J. S. Sanghera, and I. D. Aggarwal, "Mid-IR supercontinuum generation using chalcogenide photonic crystal fibers," International Conference and Exhibition on Lasers, Optics and Photonics, San Antonio, TX, Oct. 7–9, 2013.
38. **J. Hu**, Y.-P. Huang, and P. Kumar, "Raman effect in nonlinear Sagnac interferometers," The 2013 TAMU-Casper College Summer School on Quantum Science and Engineering, Casper, WY, Jul. 8–12, 2013.
39. **J. Hu**, "Photonic sensor technologies for biomedical applications," Enhancing Research Through Collaboration Retreat, Waco, TX, Mar. 15–16, 2013.

40. S. R. Sueoka, J. Butler, S. Montgomery, J. Shirk, S. Flom, R. Pong, B. Wright, T. Tauney, A. Rosenberg, C. Menyuk, and **J. Hu**, “Optical limiting in solid-core holey fibers,” 2007 AAS/AAPT Joint Meeting, American Astronomical Society Meeting, Seattle, Washington, paper 209.02, 2007

SOFTWARE PACKAGE • UndStdLeakyMode: Understanding leaky Modes
 A MATLAB program to understand leaky modes
 Sole developer
 URL: <http://www.jonathanhu.org/Software/UndStdLeakyMode>

- PhoSSiL: Photonics Systems Simulator Library
 A library of C++ codes to simulate optical fiber communications systems and lasers
 Development team member, in charge of EDFA and Raman amplifier
 URL: <http://www.umbc.edu/photonics/members/jzweck/PhoSSiL>

- STUDENT AWARD
- Wei Zhang
 Baylor ECE Outstanding Teaching Assistant Award (2024)
 - Joshua Young
 Directed Energy Professional Society (DEPS) Graduate Scholarships (2020–2023)
 - Chengli Wei
 Travel award in IEEE Photonics Society Summer Topicals Meeting Series (2015)
 Second place in FiO + LS Student Competition (2017)
 Chinese government award for outstanding self-financed student study abroad (2018)
 - Tiffany Huang
 NSF Graduate Research Fellowship (2014)
 Honorable mention from the Barry Goldwater Scholarship (2013)

GRADUATE
 COMMITTEE

- Chair
- Chengli Wei, “Chalcogenide-glass negative curvature fibers” (Ph.D. 2018)
 - Chao Niu, “Diamagnetic and plasmonic properties of graphene” (Ph.D. 2018)
 - Josh Young, “TMI and BI in High-power lasers” (Ph.D. 2022)
 - Wei Zhang, “Thermal effect in optical devices” (expected Ph.D. 2025)
 - Zhihao Hu, “Nonlinear effects in hollow-core optical fibers” (expected Ph.D. 2026)

Member

- Ziwen He, “Air Entrainment Dynamics of Droplet Impact: from Newtonian to Non-Newtonian Fluids and Applications,” (Ph.D 2023)
- Kyler Stephens, “Study of pumping conditions on output of optically pumped interband cascade lasers,” (M.S. 2021)
- Donggee Rho, “Development of an optical cavity-based biosensor for point-of-care diagnostics,” (Ph.D. 2020)
- Brian Ko, “Multi-pulse Nonlinear Optical Spectroscopy and Light-matter Interactions in Layered Materials,” (Ph.D. 2020)
- Blake Birmingham, “Nanoscale Chemical Imaging with Novel Fiber Tip-Enhanced Raman Spectroscopy and Microscale Study of Surface Reactions on Monolayer MoS₂” (Ph.D. 2020)
- Christopher Faulkner, “An electromagnetic sensor and method for extraction of transient vapor fraction in dynamic systems” (Ph.D 2019)

- Sawal Maskey, “LePrimAlign: local entropy-based alignment of PPI networks to predict conserved” (M.S. 2019)
- George Toby, “Evaluating the Challenges and Approaches to Detecting Ice Accretion in and around Turbofan Jet Engines” (M.S. 2018)
- Bin Xu, “Classification of Human Body Activities Using Low Profile Wearable Antennas” (Ph.D. 2018)
- Yiaobiao Xia, “Imaging surface reactions at molecular level on TiO_2 surfaces” (Ph.D. 2017)
- Willis Troy, “Classification of human movements using micro doppler features in foliage environments” (Ph.D. 2017)
- Jeremy Kunz “Quantum biophotonics: Applications in plant stress and bacteria” (Ph.D. 2017)
- Tao Zhu “LEED and STM studies of rutile (1x1) and (1x2) $\text{TiO}_2(110)$ ” (Ph.D 2016)
- Blake Birmingham “Probing interactions among molecules, substrate, and trip using tip-enhanced Raman spectroscopy” (M.S. 2017)