

Kyu Young Han

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I. General Information

A. Education

- Ph.D. Physical Chemistry, Seoul National University** 2004 – 2010
"Photoswitching of color centers in diamond and its applications to far-field optical nanoscopy"
Adviser: Seong Keun Kim; Co-adviser: Stefan W. Hell
- Visiting Student, Max Planck Institute for Biophysical Chemistry** 2007 – 2010
Department of NanoBiophotonics, Göttingen, Germany
Adviser: Stefan W. Hell
- B.S. Chemistry, Seoul National University, Seoul, Korea** 2004

B. Employment

- 01/2016 – present **Assistant Professor**, CREOL, The College of Optics and Photonics,
University of Central Florida, Orlando, FL
- 02/2011 – 12/2015 **Postdoctoral Fellow**, Prof. Taekjip Ha Lab
Howard Hughes Medical Institute
University of Illinois at Urbana-Champaign, Urbana, IL

C. Research Interest

Fluorescence microscopy (super-resolution, quantitative imaging, live-cell imaging)
Single-molecule bioassay (fluorescence and scattering)
Novel tools of optics and photonics for bioimaging and biosensing
High-throughput and high-content cell assay
Deep learning assisted imaging and analysis
4D Nucleome (structures, functions, dynamics)
Fluorescent tags and Photophysics

D. Honors and Awards

NIH Maximizing Investigators' Research Award (MIRA) for Early Stage Investigators, 2020
Outstanding Reviewer Award in JPhysD: Applied Physics, 2016
NSF CPLC 10k Pilot Projects, 2014
LOTTE Award for Excellence in Ph.D., 2010
Max Planck Institute Fellowship, 2008-2010
International Research Collaboration Fellowship (KRF), 2007 – 2008
Korea Science and Engineering Foundation Scholarship, 2005

UCF awards

Exploratory Research Award, 2020
ORC Mentoring Program Award, 2017

II. Research Activities

A. Research Grants Received

Total funded amount to Han since 2016: ~\$3.8M

Funding agencies: NIH, NSF, DARPA, UCF

Active

NIH/NIGMS (R35GM138039)

“Administrative Supplements: Super-multiplexed fluorescence nanoscopy for imaging-based proteomics”

Funding period: 09/01/21 – 08/31/22

Role: PI

Amount: \$200,000

NIH/NIGMS (R35GM138039)

“Super-multiplexed fluorescence nanoscopy for imaging-based proteomics”

Funding period: 09/15/20 – 08/31/25

Role: PI

Amount: \$1,674,843

The main goal of this MIRA for Early Stage Investigators is to develop highly multiplexed immunofluorescence super-resolution imaging tools. This approach is fast, low cost and readily accessible, which will facilitate nanoscale imaging-based proteomics in cells and tissues.

NIH/NIDDK (U01DK127422)

“Identification of the active nuclear niche(s) using novel proteomic, genomic, transgenic, and live-cell microscopy technologies”

Funding period: 09/15/20 – 06/30/25

Role: Multiple PI [Belmont (Contact PI), Shav-Tal (Collaborator)]

Amount: \$1,200,267 (total: \$4,166,502)

The main goal of this 4D Nucleome proposal is identify components of known and still unknown nuclear active niches using a novel combination of proteomics and omics proximity-labeling. Live-cell imaging will then determine the movements of genes and mRNAs to and from these active niches and determine the functional significance of these movements on gene expression exploiting the design of novel, low-cost and high-end microscopes.

NIH/NIGMS (R21GM131163)

“Multicolor two-photon excitation STED microscopy with multichannel compact semiconductor laser”

Funding period: 08/01/19 – 06/30/22

Role: PI [Delfyett and Van Stryland (Co-Is)]

Amount: \$201,177 (total: \$382,339)

The major goal of this project is to develop compact, low cost, multi-wavelength ultrafast laser systems for multicolor two-photon imaging including two-photon STED microscopy.

NSF/CBET/Biophotonics (1805200)

“High-speed and minimally photo-damaging STED microscopy using nanolaser arrays”

Funding period: 07/15/18 – 06/30/22

Role: PI [Khajavikhan (Co-PI)]

Amount: \$300,000 (total: \$600,000)

The major goal of this project is to develop the next generation STED microscope by replacing the cumbersome, expensive and slow lighting system with a novel fast addressable light source assembly to reduce photobleaching and phototoxicity.

Completed

UCF Exploratory Research Award

“Super-multiplexed super-resolution microscopy for imaging-based proteomics”

Funding period: 01/05/20 – 01/04/21

Role: PI

Amount: \$32,000

The main goal of this intramural award is to realize real-time image restoration by GPU-powered deep-learning, which can help to accomplish imaging-based proteomics. This award aims to help junior researchers at UCF to obtain preliminary results for applying to external funding agencies for career development.

NIH/NINDS (R01NS101461)

“Pum2-dependent translational regulation of α -SYN near mitochondria and contribution to the pathogenesis of Parkinson's disease”

Funding period: 09/15/18 – 05/31/20

Role: Collaborator [Kim (PI)]

Amount: \$21,536

The goal of this project is to investigate the role of the α -synuclein (α -SYN) mRNA 3'UTR and mitochondrial involvement in expression control of α -SYN in Parkinson's disease pathogenesis. The role of my research group is to perform single-molecule fluorescence *in situ* hybridization experiments to analyze mutant α -SYN mRNA quantitatively at a single cell level.

NIH/NINDS (R01NS100919)

“Contribution of transcriptional mutagenesis of oxidative DNA lesions to generating new mutant alpha-synuclein species and aggregation toward the pathogenesis of Parkinson's disease”

Funding period: 12/15/17 – 05/31/20

Role: Collaborator [Kim (PI)]

Amount: \$21,886

The goal of this project is to investigate oxidative stress-mediated transcriptional mutagenesis of α -synuclein and its contribution to α -synuclein aggregation and cell-to-cell transmission. The role of my research group is to provide single-molecule pull-down assay technique for detecting a small amount of α -synuclein variants.

DARPA (HR00111720066)

“Electrodynamically mediated energy transduction in cytoskeleton”

Funding period: 10/01/17 – 04/30/21

Role: Co-PI [Dogariu (PI)]

Amount: \$141,215 (total: \$1,059,090)

The goal of this project is to investigate long-range electromagnetic forces in biomolecules and living cells. My role is to study microtubule dynamics under electromagnetic fields using single-molecule fluorescence imaging technique.

Pending

Facebook AR/VR (*Under research agreement negotiation*)

“Quantitative fluorescence imaging”

Funding period: 07/01/20 –

Role: PI

Amount: \$78,427

This contract proposal aims to characterize AR/VR wafers of Facebook by our state-of-art quantitative fluorescence imaging system.

B. Publications

Total number of peer-reviewed publications: 40; h-index: 18 ([Google Scholar](#))

*: equally contributed first author; †: equally contributed corresponding author

Peer-reviewed Journal Publications

41. V. Ebrahimi*, J. Tang* & K.Y. Han, “Incoherent superposition of polychromatic light enables single-shot nondiffracting light-sheet microscopy”, *Opt. Express*, In Press.

40. J. Ren & K.Y. Han, "2.5D microscopy with polarization-independent SLM for enhanced detection efficiency and depth aberration correction", *Opt. Express* 29, 27530-27541 (2021).
39. J. Ren & K.Y. Han, "2.5D microscopy: Fast, high-throughput imaging via volumetric projection for quantitative subcellular analysis", *ACS Photonics* 8, 933-942 (2021).
38. C.H. Weng, J. Tang & K.Y. Han, "Optimizing the performance of multiline-scanning confocal microscopy", *J. Phys. D: Appl. Phys.*, 54, 105401 (2021).
37. B. Croop, J. Tang & K.Y. Han, "Single-shot, shadowless total internal reflection fluorescence microscopy via annular fiber bundle", *Opt. Lett.*, 45, 6470-6473 (2020).
36. J. Tang & K.Y. Han, "Instantaneous non-diffracting light-sheet generation by controlling spatial coherence", *Opt. Comm.* 474, 126154 (2020).
35. J. Tang*, J. Ren* & K.Y. Han, "Fluorescence imaging with tailored light", *Nanophotonics* 8, 2111-2128 (2019). [#Invited review](#)
34. J.C. Lee, Y. Ma, K.Y. Han & T. Ha, "Accurate background subtraction in STED nanoscopy by polarization switching", *ACS Photonics* 6, 1789-1797 (2019).
33. J. Tang & K.Y. Han, "Low-photobleaching line-scanning confocal microscopy using dual inclined beams", *J. Biophotonics* 12, e201900075 (2019).
32. J. Kim, K.Y. Han, N. Khanna, T. Ha & A.S. Belmont, "Nuclear speckle fusion via long-range directional motion regulates speckle morphology after transcriptional inhibition", *J. Cell. Sci.* 132, jcs226563 (2019). [#Featured on the journal cover.](#)
31. J. Tang, C.H. Weng, J.B. Oleske & K.Y. Han, "A guide to build a highly inclined swept tile microscope for extended field-of-view single-molecule imaging", *JoVE* (invited article), e59360 (2019). [# >10,000 views.](#)
30. B. Croop & K.Y. Han, "Facile single-molecule pull-down assay for analysis of endogenous proteins", *Phys. Biol.* 16, 035002 (2019). [#Special Issue on Development and Applications of Single-Molecule and Super-Resolution Imaging](#)
29. B. Croop, C. Zhang, Y. Lim, R.M. Gelfand & K.Y. Han, "Recent advancement of light-based single-molecule approaches for studying biomolecules", *WIREs Syst. Biol. Med.*, 11, e1445 (2019). [#Invited review](#)
28. J. Tang & K.Y. Han, "Extended field-of-view single-molecule imaging by highly inclined swept illumination", *Optica* 5, 1063-1069 (2018).
27. K.Y. Han & T. Ha, "Measuring molecular mass with light", *Nature Photonics (News & Views)* 12, 380–381 (2018).
26. I. Khaw*, B. Croop*, J. Tang, A. Möhl, U. Fuchs & K.Y. Han, "Flat-field illumination for quantitative fluorescence imaging", *Opt. Express* 26, 15276-15288 (2018). [#Selected as one of the most downloaded articles in June from Optics Express.](#)
25. B. Hua, Y. Wang, S. Park, K.Y. Han, D. Singh, J.H. Kim, W. Cheng & T. Ha, "Single-molecule centroid localization algorithm improves the accuracy of fluorescence binding assays", *Biochemistry* 57, 1572–1576 (2018).
24. G. Je, B. Croop, S. Basu, J. Tang, K.Y. Han† & Y.S. Kim†, "Endogenous alpha-synuclein protein analysis from human brain tissues using single-molecule pull-down assay", *Anal. Chem.* 89, 13044-13048 (2017).
23. J. Tang, Y. Sun, S. Pang & K.Y. Han, "Spatially encoded fast single-molecule spectroscopy with full field-of-view", *Sci. Rep.* 7, 10945 (2017).

Before CREOL

22. I. Masuda, T. Igarasgi, R. Sakaguchi, R. Nitharwal, R. Takase, K.Y. Han, B.J. Leslie, C. Liu, H. Gamper, T. Ha, S. Sanyal & Y.M. Hou, "A genetically encoded fluorescent tRNA is active in live-cell protein synthesis", *Nucleic Acids Res.* 45, 4081-4093 (2017).

21. P. Heo, Y. Yang, K.Y. Han, B. Kong, J.H. Shin, Y. Jung, J. Shin, Y.K. Shin, T. Ha & D.H. Kweon, "A chemical controller of SNARE-driven membrane fusion that primes vesicles for Ca²⁺-triggered millisecond exocytosis", *J. Am. Chem. Soc.* 138, 4512-4521 (2016).
20. J. Kwon, J. Hwang, J. Park, G.R. Han, K.Y. Han[†] & S.K. Kim[†], "RESOLFT nanoscopy with photoswitchable organic fluorophores", *Sci. Rep.* 5, 17804 (2015).
19. J. Zhang, J. Fei, B.J. Leslie, K.Y. Han, T.E. Kuhlman & T. Ha, "Tandem Spinach array for mRNA imaging in living bacterial cells", *Sci. Rep.* 5, 17295 (2015).
18. K.Y. Han & T. Ha, "Dual-color three-dimensional STED microscopy with a single high-repetition-rate laser", *Opt. Lett.* 40, 2653-2656 (2015).
17. B. Hua, K.Y. Han, R. Zhou, H. Kim, X. Shi, S.C. Abeysirigunawardena, A. Jain, D. Singh, V. Aggarwal, S. A. Woodson & T. Ha, "An improved surface passivation method for single-molecule studies", *Nature Methods* 11, 1233-1236 (2014).
16. K.Y. Han, B.J. Leslie, J. Fei, J. Zhang & T. Ha, "Understanding the photophysics of the Spinach-DFHBI RNA aptamer-fluorogen complex to improve live-cell RNA imaging", *J. Am. Chem. Soc.* 135, 19033-19038 (2013).
15. G. Vicidomini, A. Schönle, H. Ta, K.Y. Han, G. Moneron, C. Eggeling & S.W. Hell, "STED nanoscopy with time-gated detection: theoretical and experimental aspects", *PLOS One* 8, e54421 (2013).
14. J.W. Lee, S. Lee, S. Jang, K.Y. Han, Y. Kim, S.K. Kim & Y. Lee, "Preparation of non-aggregated fluorescent nanodiamonds (FNDs) by non-covalent coating with a block copolymer and proteins for enhancement of intracellular uptake", *Mol. BioSyst.* 9, 1004-1011 (2013).
13. K.Y. Han*, D. Wildanger*, E. Rittweger, J. Meijer, S. Pezzagna, S.W. Hell & C. Eggeling, "Dark state photophysics of nitrogen-vacancy centres in diamond", *New J. Phys.* 14, 123002 (2012). [#IOP select article](#)
12. J. Jung, K.Y. Han, H.R. Koh, J. Lee, Y.M. Choi, C. Kim & S.K. Kim, "Effect of single-base mutation on activity and folding of 10-23 deoxyribozyme studied by three-color single molecule ALEX FRET", *J. Phys. Chem. B* 116, 3007-3012 (2012).
11. H.R. Koh, K.Y. Han, J. Jung & S.K. Kim, "Quantitative genotyping of single nucleotide polymorphism by single-molecule multi-color fluorescence resonance energy transfer", *Chem. Comm.* 47, 10362-10364 (2011).
10. G. Vicidomini*, G. Moneron*, K.Y. Han*, V. Westphal, H. Ta, M. Reuss, J. Engelhardt, C. Eggeling & S.W. Hell, "Sharper low-power STED nanoscopy by time gating", *Nature Methods* 8, 571-573 (2011).
9. K.Y. Han, S.K. Kim, C. Eggeling & S.W. Hell, "Metastable dark states enable ground state depletion microscopy of nitrogen vacancy centers in diamond with diffraction-unlimited resolution", *Nano Lett.* 10, 3199-3203 (2010).
8. N.K. Lee, H.R. Koh, K.Y. Han, J.H. Lee & S.K. Kim, "Single-molecule, real-time measurement of enzyme kinetics by alternating-laser excitation fluorescence resonance energy transfer", *Chem. Comm.* 46, 4683-4685 (2010).
7. K.T. Lee, K.Y. Han, I. Oh & S.K. Kim, "Barrierless pathways in the neutral-zwitterion transition of amino acid: Glycine-(H₂O)₉", *Chem. Phys. Lett.*, 495, 14-16 (2010).
6. K.Y. Han, K.I. Willig, E. Rittweger, F. Jelezko, C. Eggeling & S.W. Hell, "Three-dimensional stimulated emission depletion microscopy of nitrogen-vacancy centers in diamond using continuous-wave light", *Nano Lett.* 9, 3323-3329 (2009).
5. E. Rittweger*, K.Y. Han*, S.E. Irvine*, C. Eggeling & S.W. Hell, "STED microscopy reveals crystal colour centres with nanometric resolution", *Nature Photon.* 3, 144-147 (2009)
[#See also "Seeing diamond defects", News & Views in Nature Photonics](#)
4. H.M. Kim, K.Y. Han, J. Park, S.K. Kim, & Z.H. Kim, "Conformational study of jet-cooled L-phenylglycine", *J. Chem. Phys.* 128, 184313 (2008).

3. H.M. Kim, K.Y. Han, J. Park, G.S. Kim, & S.K. Kim, "Solvent migration from the C- to the N-terminus of amino acid in photoionization of phenylglycine-water complex", J. Chem. Phys. 128, 041104 (2008).
2. N.K. Lee, H.R. Koh, K.Y. Han & S.K. Kim, "Folding of 8-17 deoxyribozyme studied by three-color alternating-laser excitation of single molecules", J. Am. Chem. Soc. 129, 15526-15534 (2007).
1. K.T. Lee, H.M. Kim, K.Y. Han, J. Sung, K.J. Lee & S.K. Kim, "Spectroscopic observation of conformation-dependent charge distribution in a molecular cation", J. Am. Chem. Soc. 129, 2588-2592 (2007).

C. Patents & Provisional application

5. Benjamin Croop, Jialei Tang & Kyu Young Han, "Microscopy illumination apparatus, methods, and applications", UCF provisional application No. 34554.
4. Jialei Tang, Vahid Ebrahimi & Kyu Young Han, "Instantaneous non-diffracting light sheets", UCF provisional application No. 34379.
3. Jialei Tang & Kyu Young Han, "Multiple inclined beam line-scanning imaging apparatus, methods, and applications", Patent Pending; U.S. Patent Application No. 16/398,630.
2. Jialei Tang & Kyu Young Han, "Highly inclined swept tile (HIST) imaging apparatus, methods, and applications", Patent Pending; U.S. Patent Application No. 16/398,463.
1. Stefan W Hell, Johann Engelhardt, Matthias Reuss, Volker Westphal, Christian Eggeling, Gael Moneron, **Kyu Young Han**, Giuseppe Vicidomini & Katrin Willig, "STED microscopy with pulsed excitation, continuous stimulation, and gated registration of spontaneously emitted fluorescence light", WO2012069076; JP2013543980; US2013256564. [#Licensed to Leica Microsystems & Abberior Instruments.](#)

III. Presentations

A. Invited Talks & Presentations – External

29. Focus On Microscopy, Virtual, 03/2021.
28. NIH 4DN Scientific Webinar, Virtual, 02/2021.
27. International Workshop on Optics, Biology and Related Technologies, Virtual (Utsunomiya University, Japan), 02/2021.
26. NIH 4DN kickoff meeting, Virtual, 10/2020.
25. LG Electronics Optics Lab, Seoul, Korea, 12/2019.
24. US-Korea Conference on Science, Technology and Entrepreneurship Conference: Chemistry Symposium, Chicago, IL, 08/2019.
23. ACS Spring National Meeting, Orlando, FL, 04/2019.
22. Andor Academy, A Keynote Speaker, Frontiers in fast, low-light imaging, microscopy and spectroscopy, Orlando, FL, 03/2019.
21. OSA IONS Conference, Orlando, FL, 03/2019.
20. SPIE BIOS, Imaging, Manipulation, and Analysis of Biomolecules, Cells, and Tissues XVII, San Francisco, CA, 02/2019.
19. Principles of Fluorescence Techniques, Beckman Institute, University of Illinois at Urbana-Champaign, Urbana, IL, 04/2018.
18. APS March Meeting, Los Angeles, CA, 03/2018.
17. DARPA RadioBio Kickoff Meeting, Washington DC, 10/2017.
16. Mayo Clinic Florida, Department of Neuroscience, Jacksonville, FL, 06/2017.
15. SPIE Optics + Photonics, Biosensing and nanomedicine IX, San Diego, CA, 08/2016.
14. US-Korea Conference on Science, Technology and Entrepreneurship Conference Physics Symposium (Biophysics), Dallas, TX, 08/2016.

13. Rensselaer Polytechnic Institute, Department of Materials Science & Engineering, Troy, NY, 06/2016.
12. Yale University, Department of Applied Physics, New Haven, CT, 05/2016.

Prior to 2015

11. CREOL, The College of Optics & Photonics, UCF, Orlando, FL, 06/2015.
10. Sungkyunkwan University, Department of Biotechnology & Bioengineering, Suwon, Korea, 05/2015.
9. KAIST, Department of Bio and Brain Engineering, Daejeon, Korea, 05/2015.
8. Seoul National University, Department of Biophysics & Chemical Biology, Seoul, Korea, 05/2015.
7. EMBL seminar, "Future scientific leaders – The best and brightest young scientists for single molecule science", Sydney, Australia, 11/2014.
6. Korea Research Institute of Chemical Technology, Daejeon, Korea, 11/2010.
5. Korea University, Department of Physics, Seoul, Korea, 10/2010.
4. Kyung Hee University, Department of Applied Chemistry, Yong-in, Korea, 09/2010.
3. IAMS Academia Sinica, Biophysics and Bioanalytical Technology group, Taipei, Taiwan, 07/2010.
2. Sungkyunkwan University, Department of Energy Science, Suwon, Korea, 06/2010.
1. IAMS Academia Sinica, Taipei, Taiwan, 09/2009.

B. Invited Talks & Presentations – Internal

8. CREOL Fall Colloquium, Virtual, 09/2021.
7. UCF Research Week Faculty Presentation, Virtual, 03/2021.
6. UCF Biophysics seminar, Virtual, 10/2020.
5. UCF College of Medicine, Internal Medicine, Orlando, FL, 03/2018.
4. UCF, Burnett Biomedical Science, Orlando, FL, 04/2016.
3. Advanced Microscopy Workshop, "The promise of multi-modal contrast", hosted by Materials Research Lab, Institute for Genomic Biology and Beckman Institute at UIUC, Urbana, IL, 03/2013.
2. UIUC, Department of Materials Science and Engineering, Urbana, IL, 12/2011.
1. Seoul National University, Department of Biophysics and Chemical Biology, Korea, 01/2011.

C. Contributed Conference Presentations (Since 2016)

18. V. Ebrahimi, J. Tang & K.Y. Han, "Single-shot non-diffracting light-sheet microscopy by dispersion of light", CLEO: Novel Biophotonic Illumination and Sources, Virtual, 05/2021.
17. B. Croop & K.Y. Han, "Artefact-free fluorescence imaging via an annular fiber bundle." CREOL Industrial Affiliates Symposium, Virtual, 04/2021.
16. J. Ren & K.Y. Han, "2.5D Microscopy: Fast, high-throughput subcellular imaging via volumetric projection", Biophysical Society Annual Meeting: Optical Microscopy and Superresolution Imaging II, Virtual, 02/2021.
15. B. Croop, J. Tang & K.Y. Han, "Uniform, universal, shadowless TIRF microscopy via annular fiber bundle." Biophysical Society Annual Meeting, Virtual, 02/2021.
14. J. Tang & K.Y. Han, "Instantaneous generation of static light-sheets using 1D coherent beam", CLEO: Applications and Technology, Virtual, 05/2020.
13. J. Tang & K.Y. Han, "Line-scanning confocal microscopy with multiple inclined beams", SPIE Photonics West BiOS, San Francisco, CA, 02/2020.
12. V. Ebrahimi, C.H. Weng & K.Y. Han, "Deep learning based line-scanning confocal microscopy", SPIE Photonics West BiOS, San Francisco, CA, 02/2020.
11. C.H. Weng & K.Y. Han, "Electronically controllable multiple line-scanning confocal

- microscopy using digital micromirror device", SPIE Photonics West BiOS: Three-Dimensional and Multidimensional Microscopy, San Francisco, CA, 02/2020.
10. J. Ren & K.Y. Han, "Highly inclined plane illumination microscopy with extended imaging depth", SPIE Photonics West BiOS: Single Molecule Spectroscopy and Superresolution Imaging XIII, San Francisco, CA, 02/2020.
 9. I. Khaw, B. Croop, J. Tang, A. Möhl, U. Fuchs & K.Y. Han, "Flat field illumination for improved fluorescence microscopy", European Conference on Biomedical Optics, Munich, Germany, 06/2019.
 8. J. Tang & K.Y. Han, "Extended field-of-view single-molecule imaging by highly inclined swept illumination", SPIE Photonics West BiOS, San Francisco, CA, 03/2019.
 7. B. Croop & K.Y. Han, "Quantitative single-molecule pull down for probing endogenous protein complex stoichiometry." SPIE Photonics West BiOS, San Francisco, CA, 03/2019.
 6. A. Möhl, I. Khaw, B. Croop, J. Tang, U. Fuchs & K.Y. Han, "Improving quantitative fluorescence imaging with flat field illumination", SPIE Photonics West BiOS: Imaging, Manipulation, and Analysis of Biomolecules, Cells, and Tissues XVII, San Francisco, CA, 03/2019.
 5. B. Croop, I. Khaw, J. Tang, A. Möhl, U. Fuchs & K.Y. Han, "Flat-field illumination fluorescence microscopy towards quantitative imaging." Biophysical Society Annual Meeting, San Francisco, CA, 02/2018.
 4. J. Tang & K.Y. Han, "Light-sheet HILO microscopy enables clear 3D single-molecule imaging with extended periods", Biophysical Society Annual Meeting, San Francisco, CA, 02/2018.
 3. B. Croop, G. Je, J. Tang, Y.S. Kim & K.Y. Han, "Endogenous alpha-synuclein analysis using single-molecule pull-down assay." Biophysical Society Annual Meeting, San Francisco, CA, 02/2018.
 2. G. Je, B. Croop, S. Basu, J. Tang, K.Y. Han & Y.S. Kim, "Endogenous alpha-synuclein protein analysis on human brain tissues using single-molecule pull-down assay, Neuroscience 2017, Washington DC, 11/2017.
 1. J. Tang & K.Y. Han, "Spatially encoded fast single molecule imaging with full-field of view", SPIE Photonics West BiOS: Single Molecule Spectroscopy and Superresolution Imaging X, San Francisco, CA, 02/2017.

IV. Teaching and Mentoring

A. Courses taught

Spring 2021	OSE3200 (Geometric Optics)	23 students
Fall 2020	OSE4721 (Biophotonics)	18 students
Spring 2020	OSE3200 (Geometric Optics)	19 students
Fall 2019	OSE4721 (Biophotonics)	17 students
Spring 2019	OSE3200 (Geometric Optics)	16 students
Fall 2018	OSE4721 (Biophotonics)	22 students
Spring 2018	OSE3200 (Geometric Optics)	20 students
Fall 2017	OSE4721 (Biophotonics)	6 students
Fall 2016	OSE4721 (Biophotonics)	6 students
Summer 2021	OSE4912 (Directed Independent Research)	1 student
Spring 2020	OSE4912 (Directed Independent Research)	1 student

B. Current Mentorship

Current PhD students

<i>Chun-Hung Weng</i>	Optics and Photonics graduate Internship at Samsung (Summer 2021)	March 2018 –
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<i>Vahid Ebrahimi</i>	Optics and Photonics graduate	Nov 2018 –
<i>Ameer Batarseh</i>	Optics and Photonics graduate	August 2021 –
<i>Le-Mei Wang</i>	Optics and Photonics graduate	August 2021 –
<i>Abdullah Husain</i>	Optics and Photonics graduate	August 2021 –

Current researchers & Postdocs

<i>Dr. Jiah Kim</i>	Visiting postdoctoral associate University of Illinois at Urbana-Champaign Department of Cell and Developmental Biology Advisor: Prof. Andrew S. Belmont	Oct 2020 –
<i>Dr. Benjamin Croop</i>	Research Scientist	Aug 2021 –

Current Undergraduates

<i>Robin Howell</i>	Photonic Science & Engineering	May 2021 –
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C. Former Mentorship**Former PhD students**

<i>Jinhan Ren</i>	Optics and Photonics PhD Currently working at KLA Transferred from Khajavikhan's lab Internship at IBM (Summer 2018)	Dec 2018 – Aug 2021
<i>Benjamin Croop</i>	Optics and Photonics PhD Currently working at CREOL, UCF as Research Scientist Finalist of CREOL Student of the Year (2020/2021) UCF Multidisciplinary Doctoral Fellowship Internship at NASA (Summer 2018)	Aug 2016 – Aug 2021
<i>Chenyi Zhang</i>	Optics and Photonics PhD Currently working at Lumentum as Senior Optical Engineer Transferred from Prof. Ryan Gelfand's lab Internship at Lumentum (Summer 2020)	Aug 2020 – May 2021
<i>Jialei Tang</i>	Optics and Photonics PhD Currently working at ASML as Senior Design Engineer Finalist of CREOL Student of the Year (2019/2020) Doctoral Research Support Award Internship at Applied Materials (Summer 2019)	Jan 2016 – May 2020

Former MS students

<i>Ian Khaw</i>	Optics and Photonics MS Currently working at North American Lighting as Optical Engineer II	Nov 2016 – May 2018
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Former Undergraduate

<i>Brandon Triplett</i>	Photonic Science & Engineering Currently PhD student in Purdue University	2018
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D. Former Visiting Scholars

<i>Kang-Taek Lee</i>	Associate Professor, Gwangju Institute of Science and Technology (GIST), Korea	Aug 2018 – July 2019
<i>Bo Cao</i>	Undergraduate Student, Tsinghua University	July 2018 – Aug 2018

E. Other Activities

Senior Design Committee		2018 –
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PhD Thesis Committee 2016 –

V. Professional Services

A. Services at UCF

University Committees:

University Master Planning Committee 2017 –
Library Advisory Committee 2016

CREOL Committees:

Optics Day Outreach Program Organizer 2020
Biophotonics Faculty Search Committee 2016 –
Website Committee 2016 –
PhD Advisory Committee 2016 –

ORC Workshop Presentation:

NIH MIRA for Early Stage Investigators March 2021

B. Services at Other Institutions

University of Illinois at Urbana-Champaign March 2021 –
PhD Thesis Committee, School of Molecular and Cellular Biology

NIH 4D Nucleome Program:

Integrating imaging and omics working group, *member*
Real-time chromatin dynamics and function interest group, *member*

C. Professional Activities

Grant reviewer:

NIH/NIGMS RM1, *ad hoc* mail reviewer, July 2021
NSF/DBI Major Research Instrumentation, *ad hoc* review panel, May 2021
NIH study session MSFB, *ad hoc* review panel, Feb 2020
DFG German Research Foundation, *ad hoc* mail reviewer, Aug 2020
North Carolina Biotech, *ad hoc* mail reviewer, Nov 2020
DFG German Research Foundation, *ad hoc* mail reviewer, Nov 2018

Journal reviewer:

Nature Methods, Nature Communications, eLife, Scientific Reports
Optica, Adv. Opt. Photonics, Opt. Express, Biomed. Opt. Express, Opt. Mater.
Express, Appl. Opt., J. Phys. D: Appl. Phys., J. Microscopy
Nanoscale, Methods, Phys. Biol., Nanoscale Res. Lett., J. Phys. Chem. B

Journal advisory panel:

Journal of Physics D: Applied Physics, 2017 –

Program session chair in conference:

SPIE Optics + Photonics, Biosensing and nanomedicine IX, Aug 2016

Industry Consulting:

Facebook AR/VR Europe, 2020 – Present
LG Electronics Optics Lab, 2019

Professional affiliations:

OSA, member
SPIE, member
BPS, member

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