

# Thomas K. Allison

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Stony Brook University  
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## Education

Ph.D. Physics, University of California at Berkeley, 2010.  
Thesis Advisors: Roger Falcone and Ali Belkacem  
Dissertation: "Femtosecond Molecular Dynamics Studied with Vacuum Ultraviolet Pulse Pairs"  
M.S. Physics, University of California at Berkeley, 2006.  
B.S. Engineering Physics, Cornell University, 2003.  
Summa Cum Laude with honors  
Dissertation: "A New Pressure Gauge for UHV and XHV"

## Honors and Awards

Stony Brook University Discovery Prize, 2017.  
DOE Early Career Award, 2016.  
AFOSR Young Investigator, 2013.  
JILA Scientific Achievement Award, 2012.  
National Research Council/NIST Postdoctoral Research Associate Awardee, 2009.  
Marie Curie Fellowship Awardee, 2009.  
Hertz Foundation Fellowship Finalist, 2005.  
Outstanding Graduate Student Instructor Award. University of California at Berkeley, 2004.  
Paul Hartman Prize in Experimental Physics. Cornell University, 2003.  
Merrill Presidential Scholar. Cornell University, 2003.

## Employment

Associate Professor, Stony Brook University, 2020-Present  
Assistant Professor. Stony Brook University, 2013-2019  
National Research Council Postdoctoral Fellow, 2010 to 2012.  
Graduate Student Researcher, University of California at Berkeley, 2004-2010.  
Graduate Student Instructor, University of California at Berkeley, 2003-2004.

Yuning Chen, 2013-2018, Melanie A. Roberts Reber 2013-2016, Donald Willcox 2013, Kevin Keleher 2013-2014, Peng Zhao 2014-present. Xinlong Li 2014-present, Austin Polanco 2014-2015, Kegan Orłowski 2015, Christopher Corder 2015-Present, Hui Li 2016, Fangqiong Yuan 2016-2017, Zihan Zhang 2016, Myles Silfies 2016-Present, Elena Pavlenko 2016-2017, Jin Bakalis 2017-present, Neomi Lewis, 2017-present, Jose Miguel Batista 2018-present, Anthony Catanese 2018-present, Jay Rutledge 2018-present, Grzegorz Kowzan 2018-2019. Sergey Chernov 2019-present, Alice Kunin 2019-present

## Publications

### Journal Articles

1. G. Schönhense et al. "Suppression of the vacuum space-charge effect in fs-photoemission by a retarding electrostatic front lens." Under review at *Rev. Sci. Inst.*
2. M. C. Silfies, G. Kowzan, N. Lewis, and T. K. Allison. "Broadband cavity-enhanced ultrafast spectroscopy." *Phys. Chem. Chem. Phys.* **23**, 9743 (2021)
3. J. Rutledge, A. Catanese, D. Hickstein, S. A. Diddams, T. K. Allison, A. S. Kowligy. "Broadband ultraviolet-visible frequency combs from cascaded high-harmonic generation in quasi-phase matched waveguides." arXiv:2102.04670 (2021)
4. M. C. Silfies, G. Kowzan, Y. Chen, N. Lewis, R. Huo, R. Baehre, T. Gross, and T. K. Allison. "Widely tunable cavity-enhanced frequency combs." *Opt. Lett.* **45**, 2123 (2020).
5. A. J. Lind, A. Kowligy, H. Timmers, F. C. Cruz, N. Nader, M. C. Silfies, T. K. Allison, S. A. Diddams. " $\chi^{(2)}$  mid-infrared frequency comb generation and stabilization with few-cycle pulses." *Phys. Rev. Lett.* **124**, 133904 (2020).
6. A. Catanese, J. Rutledge, A. Catanese, J. Rutledge, M. C. Silfies, X. L. Li, H. Timmers, A. Kowligy, A. Lind, S. A. Diddams, and T. K. Allison. "Mid-infrared frequency comb with 6.7 W of average power based on difference frequency generation." *Opt. Lett.* **45**, 1248 (2020).
7. Y. Chen, M. C. Silfies, G. Kowzan, J. Bautista, and T. K. Allison. "Tunable visible frequency combs from a Yb-fiber-laser-pumped optical parametric oscillator." *Applied Physics B* **125**, 81 (2019).
8. B. Adams et al. "Scientific Opportunities with an X-ray Free Electron Laser Oscillator.:" arXiv:1903.09317 (2019).
9. C. Corder, P. Zhao, J. Bakalis, X. L. Li, M. D. Kershis, A. R. Muraca, M. G. White, and T. K. Allison. "Ultrafast extreme ultraviolet photoemission without space charge." *Structural Dynamics* **5**, 054301 (2018).
10. C. Corder, P. Zhao, J. Bakalis, X. L. Li, M. D. Kershis, A. R. Muraca, M. G. White, and T. K. Allison. "Development of a tunable high repetition rate XUV source for time-resolved photoemission studies of ultrafast dynamics at surfaces." Proceedings SPIE 10519, LAMOM XXIII, 105190B (2018). DOI:10.1117/12.2295232.
11. H. Timmers, A. Kowligy, A. Lind, F. C. Cruz, N. Nader, M. Silfies, G. Ycas, T. K. Allison, P. G. Schunemann, S. B. Papp, and S. A. Diddams. "Molecular fingerprinting with bright, broadband infrared frequency combs." *Optica* **5**, 727 (2018).
12. T. K. Allison. "Cavity-enhanced ultrafast two-dimensional spectroscopy using higher-order modes". *J. Phys. B.* **50**, 044004 (2017).
13. X. L. Li, M. A. R. Reber, C. Corder, Y. Chen, P. Zhao, and T. K. Allison. "High-power ultrafast Yb: fiber laser frequency combs using commercially available components and basic fiber tools". *Rev. Sci. Inst.* **87**, 093114 (2016).
14. M. A. R. Reber, Y. Chen, and T. K. Allison, "Cavity-enhanced ultrafast spectroscopy: ultrafast meets ultrasensitive". *Optica* **3**, 311 (2016).
15. C. Benko, L. Hua, T. K. Allison, F. Labaye, and J. Ye. "Cavity-Enhanced Field-Free Molecular Alignment at a High Repetition Rate". *Phys. Rev. Lett.* **114**, 153001 (2015).

16. C. Benko, T. K. Allison, A. Cingöz, L. Hua, F. Labaye, D. C. Yost, and J. Ye. "Extreme Ultraviolet Radiation with Coherence Time Beyond 1 s". *Nature Photonics* **8**, 530 (2014).
17. T. E. Glover, D. M. Fritz, M. Cammarata, J. Feldkamp, T. K. Allison, H. Lemke, D. Zhu, R. N. Coffee, Sinisa Coh, S. Schwartz, D. A. Reis, S. E. Harris, and J. B. Hastings. "Microprobing Light-Matter Interactions with X-ray plus Optical Wavemixing". *Nature* **498**, 603 (2012).
18. T. K. Allison, H. Tao, W. Glover, T. W. Wright, A. M. Stooke, C. Khurmi, J. van Tilborg, Y. Liu, R. W. Falcone, T. J. Martinez, and A. Belkacem. "Ultrafast Internal Conversion in Ethylene. II. Mechanisms and Pathways for Quenching and Hydrogen Elimination". *J. Chem. Phys.* **136**, 124317 (2012).
19. A. Cingöz, D. C. Yost, T. K. Allison, A. Ruehl, M. E. Fermann, I. Hartl, and J. Ye. "Direct Frequency Comb Spectroscopy in The Extreme Ultraviolet". *Nature* **482**, 68 (2012).
20. T. K. Allison, A. Cingöz, D. C. Yost, and J. Ye. "Extreme Nonlinear Optics in a Femtosecond Enhancement Cavity", *Phys. Rev. Lett.* **107**, 183903 (2011).
21. D. C. Yost, A. Cingöz, T. K. Allison, A. Ruehl, M. E. Fermann, I. Hartl, and J. Ye. "Power Optimization of XUV Frequency Combs for Spectroscopy Applications", *Opt. Exp.* **19**, 23483 (2011).
22. H. Tao, T. K. Allison, T. W. Wright, A. M. Stooke, C. Khurmi, J. van Tilborg, Y. Liu, R. W. Falcone, A. Belkacem, and T. J. Martinez. "Ultrafast Internal Conversion in Ethylene. I. The Excited State Lifetime", *J. Chem. Phys.* **134**, 244306 (2011).
23. A. Cingöz, D. C. Yost, T. K. Allison, A. Ruehl, M. E. Fermann, I. Hartl, and J. Ye, "Broadband Phase Noise Suppression in a Yb-fiber Frequency Comb", *Opt. Lett.* **36**, 743 (2011)
24. T. K. Allison, T. W. Wright, A. M. Stooke, C. Khurmi, J. van Tilborg, Y. Liu, R. W. Falcone, and A. Belkacem. "Femtosecond Spectroscopy with Vacuum Ultraviolet Pulse Pairs", *Opt. Lett.* **35**, 3664 (2010).
25. T. E. Glover, M. P. Hertlein, S. H. Southworth, T. K. Allison, J. van Tilborg, E. P. Kanter, B. Krassig, H. R. Varma, B. Rude, R. Santra, A. Belkacem, L. Young. "Controlling X-rays with Light", *Nature Physics* **6**, 69 (2010).
26. T. K. Allison, J. van Tilborg, T. W. Wright, M. P. Hertlein, R. W. Falcone, and A. Belkacem. "Separation of High-Order Harmonics with Fluoride Windows", *Opt. Exp.* **17**, 8941 (2009).
27. J. van Tilborg, T. K. Allison, T. W. Wright, M. P. Hertlein, R. W. Falcone, Y. Liu, H. Merdji, and A. Belkacem. "Femtosecond Isomerization Dynamics in the Ethylene Cation Measured in an EUV-pump NIR-probe configuration". *J. Phys. B.* **42**, 081002 (2009).
28. K.J. Gaffney et. al. "Observation of Structural Anisotropy and the Onset of Liquid-like Motion During the Nonthermal Melting of InSb", *Phys. Rev. Lett.* **95**, 125701 (2005).
29. A. M. Lindenberg, Y. Acremann, D. P. Lowney, P. A. Heimann, T. K. Allison, T. Matthews, and R. W. Falcone. "Time Resolved Measurements of the Structure of Water at Constant Density", *J. Chem. Phys.* **122** 204507 (2005).
30. A.M. Lindenberg et. al. "Atomic Scale Visualization of Inertial Dynamics", *Science* **308**, 392 (2005).

*Invited Talks*

1. T. K. Allison. "Cavity-Enhanced Ultrafast Spectroscopy." International Knowledge Coffee House (virtual). Univ. of Pittsburg. March 8, 2021
2. T. K. Allison. "Cavity-Enhanced Ultrafast/Nonlinear Spectroscopy Using Frequency Combs: Hardware and Concepts." NIST Boulder (virtual). Feb. 12, 2021.
3. T. K. Allison. "Time-resolved ARPES with 88 MHz Repetition Rate and Full  $2\pi$  Collection Efficiency." Physical Chemistry Seminar. Fritz Haber Institute. Berlin, Germany. March 12, 2020.
4. T. K. Allison. "All-optical ultrafast spectroscopy in the physical chemist's playground of molecular beams." Physical Chemistry Kolloquien. ETH Zürich. March 10, 2020.
5. T. K. Allison. "Time-resolved ARPES with 88 MHz Repetition Rate and Full  $2\pi$  Collection Efficiency." Spin+X Kolloquium. Mainz, Germany. March 5, 2020.
6. T. K. Allison "Time-resolved ARPES with 80 MHz Repetition Rate and Full  $2\pi$  Collection Efficiency." Current and Future Opportunities in Time-resolved x-ray science: Materials and Interfaces. Sept. 27, 2019. SLAC National Laboratory, Stanford, CA.
7. T. K. Allison "Widely tunable cavity-enhanced spectroscopy and the dynamics of hydrogen bond networks", American Physical Society March Meeting, March 4-8, 2019. Boston, MA.
8. T. K. Allison "Ultrafast extreme ultraviolet photoemission without space charge", University of Connecticut Condensed Matter Physics Seminar. Dec. 4, 2018. Storrs, CT.
9. T. K. Allison "Cavity-enhanced ultrafast spectroscopy: ultrafast meets ultrasensitive", University of Connecticut Atomic, Molecular, and Optical Physics Seminar. Dec. 3, 2018. Storrs, CT.
10. T. K. Allison "HHG Sources - Novel Developments", VUV Workshop 2018. Paul Scherrer Institut. Villigen, Switzerland. Nov. 15, 2018.
11. T. K. Allison "Cavity-enhanced ultrafast spectroscopy: ultrafast meets ultrasensitive", Wayne State University Physical Chemistry Seminar. Oct. 10, 2018. Detroit, MI.
12. T. K. Allison "Ultrafast extreme ultraviolet photoemission without space charge", ETH Zürich Laser Seminar, July 23, 2018. Zürich, Switzerland.
13. T. K. Allison "Cavity-enhanced ultrafast spectroscopy", IRTG Seminar. University at Freiburg, July 20. Freiburg, Germany.
14. T. K. Allison "Cavity-Enhanced Ultrafast Spectroscopy", Telluride Science Research Center workshop on Advances of Multidimensional Vibrational Spectroscopy in Water, Biology and Materials Science, July 8-11. Telluride, CO.
15. T. K. Allison "Ultrafast extreme ultraviolet photoemission without space charge", Ohio State University AMO Physics seminar, March 16, 2018. Columbus, OH.
16. T. K. Allison "New Directions in Ultrafast Spectroscopy Enabled by Frequency Combs", Gordon Research Conference on Photoionization and Photodetachment, Feb. 18-23, 2018. Galveston, TX.
17. Corder, C., P. Zhao, X. Li, M. D. Kershner, M. G. White, and T. K. Allison. "Development of a tunable high repetition rate XUV source for time-resolved photoemission studies of ultrafast dynamics at surfaces" Photonics West, February 2018.
18. T. K. Allison "Cavity-Enhanced Ultrafast Spectroscopy", Pacific Conference for Spectroscopy and Dynamics, Jan. 25-28, 2018. San Diego, CA

19. T. K. Allison "Cavity-Enhanced Ultrafast Spectroscopy: Ultrafast Meets Ultrasensitive", Queens College Chemistry and Biochemistry Seminar, Sept. 11, 2017. New York, NY.
20. T. K. Allison "Ultrafast dynamics of charge transfer at molecule/surface interfaces", Gordon Research Conference on Dynamics at Surfaces, July 30-Aug 4, 2017. Newport, RI.
21. T. K. Allison "Cavity-Enhanced Ultrafast Spectroscopy", 8th International Meeting on Atomic and Molecular Physics and Chemistry, June 19-22, 2017 Toruń, Poland.
22. T. K. Allison "Cavity-enhanced ultrafast spectroscopy: ultrafast meets ultrasensitive." National Institute of Standards and Technology (NIST), Boulder, CO. May 25, 2017.
23. T. K. Allison "A High Brightness Laser-based Light Source for Time-resolved Extreme Ultraviolet Photoemission Studies", Workshop on Spectro-microscopy at the Nanoscale: Exploring Chemical, Electronic, and Magnetic Properties of Novel Materials, NSLS II User's Meeting, May 15, 2017. Upton, NY.
24. T. K. Allison "Cavity-enhanced ultrafast spectroscopy: ultrafast meets ultrasensitive." Cornell University LASSP seminar. Ithaca, NY. May 9, 2017
25. T. K. Allison "Ultrafast dynamics of cold gas-phase molecular complexes", New York University Chemistry Seminar, April 18, 2017. New York, NY.
26. T. K. Allison "Cavity-enhanced ultrafast spectroscopy: ultrafast meets ultrasensitive", Yale University Physical Chemistry Seminar, Dec. 6, 2016. New Haven, CT.
27. T. K. Allison "Cavity-enhanced ultrafast spectroscopy: ultrafast meets ultrasensitive", Sandia National Laboratory Combustion Research Facility, Nov. 21, 2016. Livermore, CA.
28. C. Corder and T. K. Allison "Some ideas for determining the  $f_0$  of an x-ray frequency comb produced via XFEL". XFEL Science Workshop, June 29-July 1, 2016. SLAC National Accelerator Laboratory.
29. T. K. Allison, "Cavity-Enhanced Ultrafast Spectroscopy", 47th Annual Meeting of the Division of Atomic, Molecular, and Optical Physics (DAMOP), American Physical Society. Providence, Rhode Island, May 23-27, 2016.
30. T. K. Allison, "Extreme Ultraviolet Frequency Combs: Principles and Applications". Winter College on Optics. Abdus Salam International Centre for Theoretical Physics", Trieste, Italy. Feb. 18, 2016.
31. T. K. Allison, "Cavity-Enhanced Ultrafast Spectroscopy: Ultrafast meets Ultrasensitive", Seminar at the Max Planck Institute for Quantum Optics, Garching, Germany. Feb. 15, 2016.
32. T. K. Allison, "Cavity-Enhanced Transient Absorption Spectroscopy", 70th International Symposium on Molecular Spectroscopy. June 2015.
33. T. K. Allison "High Brightness XUV Frequency Combs and Applications", Stanford Photonics Research Center 2014 Annual Symposium. September 15-18, 2015.
34. Y. Chen, M. A. R. Reber, K. Keleher, and T. K. Allison "Cavity-Enhanced Ultrafast Transient Absorption Spectroscopy", 69<sup>th</sup> International Symposium on Molecular Spectroscopy. June 16-20, University of Illinois at Urbana-Champaign.
35. T. K. Allison "Overview of High Harmonic Spectroscopy", Gordon Research Conference on Multiphoton Processes. Bentley University, Waltham, MA. June 15-20, 2014.
36. T. K. Allison "Chemical physics with synchrotrons and laser based VUV sources", Advanced Light Source User's Meeting, Berkeley, CA. Oct. 8 2013.

37. T. K. Allison, "High Brightness XUV Frequency Combs and Applications", Ultrafast X-ray Science Laboratory Seminar, Berkeley, CA. July 29, 2013.
38. T. K. Allison, A. Cingöz, D. C. Yost, A. Ruehl, M. E. Fermann, I. Hartl, and J. Ye, "High Brightness XUV Frequency Combs via Intracavity High Harmonic Generation", Williams College Physics Colloquium, Feb., 2013.
39. T. K. Allison, A. Cingöz, C. Benko, D. C. Yost, A. Ruehl, M. E. Fermann, I. Hartl, and J. Ye, "High Brightness XUV Frequency Combs via Intracavity High Harmonic Generation", University of British Columbia AMO Physics seminar, Nov 27, 2012.
40. T. K. Allison, A. Cingöz, C. Benko, D. C. Yost, A. Ruehl, M. E. Fermann, I. Hartl, and J. Ye, "High Brightness XUV Frequency Combs via Intracavity High Harmonic Generation", XVIIIth International Conference on Ultrafast Phenomena. Lausanne, Switzerland, July 8-13, 2012.
41. A. Cingöz, T. Allison, D. Yost, C. Benko, A. Ruehl, M. Ferman, I. Hartl, and J. Ye, "Frequency combs and precision spectroscopy in the extreme ultraviolet", 43rd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics (DAMOP), June 8, 2012 [INVITED HOT TOPICS]
42. T. K. Allison, A. Cingöz, D. C. Yost, A. Ruehl, M. E. Fermann, I. Hartl, and J. Ye, "The XUV frequency comb and prospects for an x-ray comb", Workshop on Evolution and Control of Complexity, Argonne National Laboratory, 2010.
43. T. K. Allison, "Femtosecond Dynamics and Multiphoton Ionization driven with an Intense High Order Harmonic Source", Santa Clara University Physics Colloquium. April 27, 2009.
44. T. K. Allison, "Femtosecond Dynamics and Multiphoton Ionization driven with an Intense High Order Harmonic Source", Stanford Linear Accelerator Center PULSE institute seminar. Nov. 12, 2008.

### *Contributed Presentations and Conference Papers*

1. M. C. Silfies, G. Kowan, N. Lewis. and T. K. Allison. "High Sensitivity Broadband Transient Absorption Spectroscopy Of Molecular Beams" International Symposium on Molecular Spectroscopy (virtual) 2021. Talk TC12.
2. G. Kowzan, "Polarization Control Of Rotationally Resolved 2D-IR Spectroscopy" International Symposium on Molecular Spectroscopy (virtual) 2021. Talk WB03.
3. J. Rutledge et al. "Broadband UV-VIS Frequency Combs from High-harmonic Generation in Quasi-phase-matched Waveguides." Conference on Lasers and Electro-Optics (CLEO) 2021 (virtual).
4. M. C. Silfies, G. Kowan, N. Lewis. and T. K. Allison. "Broadband cavity-enhanced ultrafast spectroscopy." APS March Meeting (virtual), 2021.
5. G. Kowzan, "Rotationally-resolved cavity-enhanced 2DIR spectroscopy." APS March Meeting (virtual), 2021.
6. T. K. Allison. "High-power Broadband/tunable Frequency Combs and Cavity Enhancement Methods for Executing Comb-based Nonlinear Spectroscopy." Non-Linear Multidimensional Methodologies for Studying Chemical Sciences. SLAC National Laboratory (virtual). Dec. 9-10 (2020).
7. J. Rutledge et al., "Mid-infrared frequency comb with 6.7 W average power based on difference frequency generation." Paper SF1H.2, Conference on Lasers and Electro-Optics (CLEO). San Jose, CA. May 15, 2020.

8. C. Corder et al., "Time-resolved ARPES at 88 MHz repetition rate with full  $2\pi$  electron collection." 40th International Conference on Vacuum Ultraviolet and X-ray Physics. San Francisco, CA. June 1-5, 2019.
9. M. C. Silfies et al., "Widely tunable cavity-enhanced ultrafast spectroscopy." 13th International Meeting on Cavity-Enhanced Spectroscopy. University of Wisconsin. Madison, WI. June 12, 2019.
10. T. K. Allison, "Cavity-enhanced ultrafast two-dimensional spectroscopy using higher-order modes", International Conference on Ultrafast Phenomena. Paper MON.4B.2. Hamburg, Germany. July 15-20, 2018.
11. M. C. Silfies, Y. Chen, H. Timmers, Abijith S. Kowligy, A. Lind, Scott A. Diddams, and T. K. Allison. "Widely Tunable Cavity-Enhanced Ultrafast Spectroscopy", International Conference on Ultrafast Phenomena. Paper MON.3A.7. Hamburg, Germany. July 15-20, 2018.
12. P. Zhao, C. Corder, J. Bakalis, X. L. Li, M. D. Kershis, A. R. Muraca, M. G. White, and T. K. Allison. "Ultrafast Extreme Ultraviolet Photoemission Without Space Charge", International Conference on Ultrafast Phenomena. Paper TUE.PO.41. Hamburg, Germany. July 15-20, 2018.
13. Y. Chen, M. C. Silfies, and T. K. Allison, "Widely Tunable UV/Vis Cavity-Enhanced Ultrafast Spectroscopy and Excited State Proton Transfer in Jet-Cooled Molecules and Clusters", 73rd International Symposium on Molecular Spectroscopy. University of Illinois at Urbana-Champaign, June 18-22, 2018
14. M.C. Silfies, Y. Chen, H. Timmers, A.S. Kowligy, A. Lind, S. Diddams, T.K. Allison. "High-Power Mid-IR Comb Generation for Cavity-Enhanced 2DIR Spectroscopy", 73rd International Symposium on Molecular Spectroscopy. Champaign-Urbana, Illinois, June 20, 2018.
15. Y. Chen, "Widely Tunable Cavity-Enhanced Ultrafast Spectroscopy", SLAC Photon Science Seminar. Stanford National Accelerator Laboratory, May 9, 2018
16. Y. Chen, M. C. Silfies, and T. K. Allison, "Widely Tunable Cavity Enhanced Ultrafast Spectroscopy". Cold and Controlled Molecules and Ions. Georgia, March 25-29, 2018 [Hot Topic Talk]
17. P. Zhao, C. Corder, J. Bakalis, X. L. Li, M. D. Kershis, A. R. Muraca, M. G. White, and T. K. Allison, "Ultrafast Extreme Ultraviolet Photoemission Without Space Charge". Gordon Research Conference on Photoionization and Photodetachment, Galveston, Texas. Feb. 18-23, 2018.
18. Corder, C., P. Zhao, X. Li, M. D. Kershis, A. R. Muraca, M. G. White, and T. K. Allison. "An Instrument for Time-Resolved Photoelectron Spectroscopy at 87 MHz" *Frontiers in Optics 2017*, OSA Technical Digest Paper LM4F.6 September 2017.
19. Y. Chen, M. C. Silfies, E. S. Pavlenko, M. A. R. Reber and T. K. Allison, "Toward Widely Tunable Cavity Enhanced Ultrafast Spectroscopy". Conference on Lasers and Electro-Optics (CLEO:2017). San Jose, May 14-19, 2017
20. T. K. Allison, M. A. R. Reber, and Y. Chen, "Cavity-Enhanced Ultrafast Spectroscopy: Ultrafast meets Ultrasensitive". International Conference on Ultrafast Phenomena. Santa Fe, New Mexico. July 17-22, 2016.
21. X. L. Li, P. Zhao, C. Corder, and T. K. Allison. "High-Power Narrow-Linewidth Yb: fiber Laser Frequency Comb" International Conference on Ultrafast Phenomena, OSA Technical Digest Paper UTh4A.41 July 2016 [RUNNER UP POSTER PRIZE for the Short Wavelength Sources and Attosecond/High Field Physics technical group]

22. Y. Chen, M. C. Silfies, M. A. R. Reber and T. K. Allison, "Ultrafast Transient Absorption Spectroscopy of small gas-phase clusters". Gordon Research Conference on Molecular Interactions and Dynamics. Massachusetts, July 10-15, 2016
23. C Corder, P Zhao, X Li, AR Muraca, MD Kershis, MG White, TK Allison. "Ultrafast XUV pulses at high repetition rate for time resolved photoelectron spectroscopy of surface dynamics" 2016 Joint Meeting of the APS Division of Atomic, Molecular and Optical Physics and the CAP Division of Atomic, Molecular and Optical Physics (DAMOP), Providence, RI. 2016.
24. P. Zhao, X. L. Li, C. Corder, T. K. Allison, M. D. Kershis, A. R. Muraca, M. G. White, "Real Time Dynamics of Surface Photoreactions Probed with Ultrashort XUV Pulses", Gordon Research Conference on Dynamics at Surfaces, Salve Regina University, Newport, Rhode Island. August 9- 14, 2015.
25. P. Zhao, X. L. Li, C. Corder, T. K. Allison, M. D. Kershis, A. R. Muraca, M. G. White, "Real time dynamics of surface photoreactions probed with ultrashort XUV pulses". International Conference on Electron Spectroscopy and Structure, Stony Brook, New York. Sept 28, 2015.
26. M. A. R. Reber, Y. Chen, K. Keleher, and T. K. Allison "Cavity-Enhanced Transient Absorption Spectroscopy", Gordon Research Conference on Vibrational Spectroscopy. Aug. 3-8, 2014. [HOT TOPIC TALK]
27. Y. Chen, M. A. R. Reber, K. Keleher, and T. K. Allison, "Cavity-Enhanced Ultrafast Transient Absorption Spectroscopy", 69th International Symposium on Molecular Spectroscopy. University of Illinois at Urbana-Champaign, June 16-20, 2014
28. T. K. Allison, C. Benko, A. Cingöz, L. Hua, F. Labaye, D. C. Yost, and J. Ye. "Extreme Ultraviolet Radiation with Coherence Time Longer than 1 s", APS Division of Atomic, Molecular and Optical Physics (DAMOP) Conference. Madison, WI, June 4, 2014.
29. T. K. Allison, H. Tao, W. Glover, T. W. Wright, A. M. Stooke, C. Khurmi, J. van Tilborg, Y. Liu, R. W. Falcone, T. J. Martinez, and A. Belkacem. "Ultrafast Internal Conversion in Ethylene Studied with Vacuum Ultraviolet Pulse Pairs", XXV International Symposium on Molecular Beams. Prague, Czech Republic, June 10, 2013.
30. C. Benko, T. K. Allison, A. Cingöz, D. C. Yost, and J. Ye, "Direct Measurement of the XUV Frequency Comb Coherence". 2013 Joint Meeting of the APS Division of Atomic, Molecular and Optical Physics and the CAP Division of Atomic, Molecular and Optical Physics (DAMOP), Quebec City, Canada. June 7, 2013.
31. T. K. Allison, A. Cingöz, D. C. Yost, A. Ruehl, M. E. Fermann, I. Hartl, and J. Ye, "Power Scaling and Stability of Intracavity High Order Harmonic Generation", 42nd Annual Meeting of the Division of Atomic, Molecular, and Optical Physics (DAMOP), American Physical Society. Atlanta, Georgia 2011.
32. C. Khurmi, T. K. Allison, T. W. Wright, A. M. Stooke, R. W. Falcone, and A. Belkacem. "Studying Ultrafast Internal Conversion Dynamics in Ethylene using ultrafast VUV-XUV pulses", 42nd Annual Meeting of the Division of Atomic, Molecular, and Optical Physics (DAMOP), American Physical Society. Atlanta, Georgia 2011.
33. T. K. Allison, T. W. Wright, A. M. Stooke, C. Khurmi, J. van Tilborg, Y. Liu, R. W. Falcone, and A. Belkacem. "Femtosecond Dynamics of Small Molecules Studied with Vacuum Ultraviolet Pulse Pairs", in *Ultrafast Phenomena XVII*, page 77. Snowmass, CO 2010.
34. D. C. Yost, A. Cingöz, T. K. Allison, J. Ye, A. Ruehl, M. E. Fermann, and I. Hartl. "Power Scaling of High Repetition Rate HHG", in *Ultrafast Phenomena XVII*, page 18. Snowmass, CO 2010.



35. A. Belkacem, T. K. Allison, C. Khurmi, T. W. Wright, and A. M. Stooke. "Femtosecond time-resolved study of the dissociation of small molecules using a two-color vacuum ultraviolet pump and x-ray probe technique". 41st Annual Meeting of the Division of Atomic, Molecular, and Optical Physics (DAMOP), American Physical Society. Houston, Texas 2010.
36. J. van Tilborg, T. K. Allison, T. W. Wright, M. P. Hertlein, R. W. Falcone, and A. Belkacem. "EUV-driven femtosecond dynamics in ethylene". *Journal of Physics: Conference Series* **194**, 012105. International Conference on Photonic, Electronic, and Atomic Collisions (ICPEAC), 2009.

### *Lectures for the Public*

1. T. K. Allison. "Mastering the Electromagnetic Spectrum", Stony Brook University Libraries STEM speaker series, Oct. 16, 2018. Stony Brook, NY.
2. T. K. Allison. "Recording movies of molecular orbitals with ångstrom and attosecond resolution". Stony Brook University Discovery Prize, April 18, 2017. Stony Brook, NY.
3. T. K. Allison. "Mastering the Electromagnetic Spectrum", Stony Brook University Worlds of Physics, Sept. 9, 2016. Stony Brook, NY.
4. T. K. Allison, "Using frequency comb lasers for recording movies of molecules in action", Bronx High School of Science, Sept. 13, 2016. New York, NY.
5. T. K. Allison. "Frontiers of Coherent Light Sources and Time-Resolved Molecular Imaging", Stony Brook University Worlds of Physics, Nov. 8, 2013. Stony Brook, NY.

### Courses Taught

PHY 598 Graduate Seminar, Atomic and Solid State, CHE 351/521 Quantum Chemistry I, CHE 525 Advanced Theoretical Chemistry, PHY 515/445 Advanced Laboratory. PHY 308, Quantum Physics. PHY 300, Waves and Optics.

### Professional Service

Regular reviewer for the Optical Society of America (OSA), the American Physical Society (APS), the American Institute of Physics (AIP), the Institute of Physics (IOP), the National Science Foundation (NSF), the Air Force Office of Scientific Research (AFOSR), and the Department of Energy (DOE). Program committee member for DAMOP and European Optical Society Annual Meeting. Member of the OSA, the American Physical Society (APS), and the American Chemical Society (ACS). Panelist for the NSF, DOE, and the LCLS free-electron laser PRP.