





Tony Heinz

Professor of Applied Physics and of Photon Science and, by courtesy, of Electrical Engineering

 Curriculum Vitae available Online

 Resume available Online

CONTACT INFORMATION

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Bio

BIO

Tony Heinz is a Professor of Applied Physics and Photon Science at Stanford University and the Associate Laboratory Director for Energy Sciences at the SLAC National Accelerator Laboratory. Heinz received a BS degree in Physics from Stanford University and a PhD degree, also in Physics, from the University of California at Berkeley in 1982. Heinz was subsequently at the IBM Research Division in Yorktown Heights, NY until he joined Columbia University in 1995 as a Professor of Electrical Engineering and Physics. At Columbia, he served as the Chair of the Department of Electrical Engineering from 2003 until 2007. He has also served as a Scientific Director of the Columbia Nanoscale Science and Engineering Center (NSEC) and of the Energy Frontier Research Center (EFRC). He was the President of the Optical Society of America in 2012. Heinz joined Stanford University in 2015, serving as the Director of the Chemical Sciences Division at SLAC from that time until 2019. He was been the Associate Laboratory Director for Energy Sciences at SLAC, including the Material Science, Chemical Science, Computer Science, and the Applied Energy Divisions at SLAC.

ACADEMIC APPOINTMENTS

- Professor, Applied Physics
- Professor, Photon Science Directorate
- Professor (By courtesy), Electrical Engineering
- Principal Investigator, Stanford Institute for Materials and Energy Sciences
- Member, Stanford PULSE Institute

ADMINISTRATIVE APPOINTMENTS

- Associate Laboratory Director, Energy Sciences, SLAC, (2017- present)
- Professor of Applied Physics and Photon Science, Stanford University, (2015- present)
- Director, Chemical Science Division, SLAC National Accelerator Laboratory, (2015-2019)
- David M. Rickey Professor, Columbia University, (2001-2014)
- Professor of Physics and Electrical Engineering, Columbia University, (1995-2000)
- Senior Department Manager, Department Manager, Research Staff Member, IBM Research Division, T. J. Watson Research Center, (1983-1995)

HONORS AND AWARDS

- Fellow, American Physical Society, American Vacuum Society, Optica, IEEE, AAAS
- Arthur L. Schawlow Prize, American Physical Society (2022)
- Medard W Welch Award, American Vacuum Society (2021)
- William Meggers Award, Optical Society of America (2020)
- Citation Laureate in Physics, Clarivate Web of Science (2019)
- Frank Isakson Prize, American Physical Society (2014)
- Julius Springer Prize for Applied Physics (with Phaedon Avouris), Springer (2008)
- Great Teacher Award, Columbia University (2005)
- Alexander von Humboldt Research Award, Alexander von Humboldt-Stiftung Foundation, Germany (1996)
- Ernst Abbe Medal, International Commission for Optics Prize (1995)
- IBM Invention Award, IBM (1994)
- IBM Outstanding Technical Achievement Award, IBM (1992)
- IBM Graduate Fellow, University of California, Berkeley (1982-83)
- National Science Foundation Graduate Fellow, University of California, Berkeley (1978-81)
- Levine Award for Outstanding Studies in Physics, Stanford University (1978)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Scientific Advisory Boards, Fritz-Haber Institute, Berlin; Max-Born Institute, Berlin (2014 - present)
- Editor, North America, 2D Materials journal, The Institute of Physics (2014 - 2018)
- Chair, Subcommittee on Optics and Photonics, NSF Dir. of Math and Physical Science (2013 - 2015)
- President, Optical Society of America (2012 - 2012)
- Chair, Scientific Advisory Board, Center for Integrated Nanotechnologies, Sandia National Laboratories (2011 - 2017)
- Chair, Gordon Conference on Ultrafast Dynamics of Cooperative Phenomena (2010 - 2010)
- Scientific Director, DOE Energy Frontier Research Center at Columbia (EFRC) (2009 - 2014)
- Scientific Director, NSF Nanoscale Science & Engineering Center at Columbia (2006 - 2012)
- Chair, Board of Editors, Optical Society of America (2006 - 2009)
- Chair, International Conference on Quantum Electronics (IQEC) (2002 - 2002)
- Chair, Division of Laser Science, American Physical Society (2001 - 2002)
- Chair, Review Panel, Optical Technology Division, Physics Laboratory, National Institute of Standards and Technology (NIST) (2000 - 2005)
- Director, Adriatico Symposium on Laser Applications in Science, Abdus Salam International Centre for Theoretical Physics (ICTP) (2000 - 2000)
- Chair, Quantum Electronics and Laser Science Conference (QELS) (1995 - 1995)
- Editor, Journal of the Optical Society of America B (JOSA B) (1994 - 2000)

PROFESSIONAL EDUCATION

- B.S. (with Distinction), Stanford University , Physics (1978)
- Ph.D., University of California, Berkeley , Physics (1982)

LINKS

- Heinz group website: <http://heinz.stanford.edu>
- Stanford PULSE Institute: <http://ultrafast.stanford.edu>

- Ginzton Laboratory: <http://ginzton.stanford.edu>
- SIMES - Stanford Institute for Materials and Energy Sciences: <http://simes.stanford.edu/>
- SLAC National Accelerator Laboratory: <http://slac.stanford.edu>
- Dept. of Applied Physics: <https://appliedphysics.stanford.edu>
- Dept. of Electrical Engineering: <https://ee.stanford.edu>
- Dept. of Photon Science: <https://faculty.slac.stanford.edu/photon-science-faculty>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Heinz's research has centered on the elucidation of the properties and dynamics of nanoscale materials through the application of a wide range of optical spectroscopies. His research on surfaces, interfaces, and nanoscale materials, such as carbon nanotubes, graphene and other 2D materials, has been recognized by Optics Prize of the International Commission for Optics, a Research Award of the von Humboldt Foundation, the Julius Springer Prize for Applied Physics, and the Isakson Prize of the American Physical Society.

Teaching

COURSES

2021-22

- Lasers: EE 236C (Spr)
- Modern Physics for Engineers: EE 65 (Spr)

2020-21

- Lasers: EE 236C (Spr)

2019-20

- Lasers: EE 236C (Spr)

2018-19

- Lasers: EE 236C (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Kuan-Yu Li, Adele Zawada

Postdoctoral Faculty Sponsor

Henrique Bucker Ribeiro, Ipshita Datta, Zhelong Jiang, Yuki Kobayashi, Eric Yue Ma, Markus Soldemo, Monique Tie, Xiaochu Wang, Fuhong Xie

Doctoral Dissertation Advisor (AC)

Xueqi Chen, Minda Deng, Jenny Hu, Sze Cheung Lau, Aidan O'Beirne, Kate Pistunova, Helen Yao, Alex Zimmerman

Orals Evaluator

Qitong Li

Doctoral (Program)

Jack Hirschman, Felix Mayor

Publications

PUBLICATIONS

- **Probing electron-hole coherence in strongly driven 2D materials using high-harmonic generation** *OPTICA*
Heide, C., Kobayashi, Y., Johnson, A. C., Liu, F., Heinz, T. F., Reis, D. A., Ghimire, S.
2022; 9 (5): 512-516
- **Optical absorption of interlayer excitons in transition-metal dichalcogenide heterostructures.** *Science (New York, N.Y.)*
Barre, E., Karni, O., Liu, E., O'Beirne, A. L., Chen, X., Ribeiro, H. B., Yu, L., Kim, B., Watanabe, K., Taniguchi, T., Barmak, K., Lui, C. H., Refaely-Abramson, et al
2022; 376 (6591): 406-410
- **Visible Out-of-plane Polarized Luminescence and Electronic Resonance in Black Phosphorus.** *Nano letters*
Schue, L., Goudreaux, F. A., Righi, A., Resende, G. C., Lefebvre, V., Godbout, E., Tie, M., Ribeiro, H. B., Heinz, T. F., Pimenta, M. A., Cote, M., Francoeur, S., Martel, et al
2022
- **Structure of the moire exciton captured by imaging its electron and hole.** *Nature*
Karni, O., Barre, E., Pareek, V., Georganas, J. D., Man, M. K., Sahoo, C., Bacon, D. R., Zhu, X., Ribeiro, H. B., O'Beirne, A. L., Hu, J., Al-Mahboob, A., Abdelrasoul, et al
2022; 603 (7900): 247-252
- **Ultrahigh-Quality Infrared Polaritonic Resonators Based on Bottom-Up-Synthesized van der Waals Nanoribbons.** *ACS nano*
Yu, S., Jiang, Y., Roberts, J. A., Huber, M. A., Yao, H., Shi, X., Bechtel, H. A., Gilbert Corder, S. N., Heinz, T. F., Zheng, X., Fan, J. A.
1800
- **Excitons in strained and suspended monolayer WSe₂** *2D MATERIALS*
Aslan, B., Yule, C., Yu, Y., Lee, Y., Heinz, T. F., Cao, L., Brongersma, M. L.
2022; 9 (1)
- **All-Optical Probe of Three-Dimensional Topological Insulators Based on High-Harmonic Generation by Circularly Polarized Laser Fields.** *Nano letters*
Baykushева, D., Chacon, A., Lu, J., Bailey, T. P., Sobota, J. A., Soifer, H., Kirchmann, P. S., Rotundu, C., Uher, C., Heinz, T. F., Reis, D. A., Ghimire, S.
2021
- **Hot carrier transport limits the displacive excitation of coherent phonons in bismuth** *APPLIED PHYSICS LETTERS*
Jnawali, G., Boschetto, D., Malard, L. M., Heinz, T. F., Sciaini, G., Thiemann, F., Payer, T., Kremeyer, L., Meyer zu Heringdorf, F., Horn-von Hoegen, M.
2021; 119 (9)
- **Direct observation of ultrafast hydrogen bond strengthening in liquid water.** *Nature*
Yang, J., Dettori, R., Nunes, J. P., List, N. H., Biasin, E., Centurion, M., Chen, Z., Cordones, A. A., Deponce, D. P., Heinz, T. F., Kozina, M. E., Ledbetter, K., Lin, et al
2021; 596 (7873): 531-535
- **Light Absorption and Emission Dominated by Trions in the Type-I van der Waals Heterostructures** *ACS PHOTONICS*
Bae, H., Kim, S., Lee, S., Noh, M., Karni, O., O'Beirne, A. L., Barre, E., Sim, S., Cha, S., Jo, M., Heinz, T. F., Choi, H.
2021; 8 (7): 1972-1978
- **Signatures of moire trions in WSe₂/MoSe₂ heterobilayers.** *Nature*
Liu, E., Barre, E., van Baren, J., Wilson, M., Taniguchi, T., Watanabe, K., Cui, Y., Gabor, N. M., Heinz, T. F., Chang, Y., Lui, C. H.
2021; 594 (7861): 46-50
- **Enhanced nonlinear interaction of polaritons via excitonic Rydberg states in monolayer WSe₂.** *Nature communications*
Gu, J., Walther, V., Waldecker, L., Rhodes, D., Raja, A., Hone, J. C., Heinz, T. F., Kena-Cohen, S., Pohl, T., Menon, V. M.
2021; 12 (1): 2269
- **High-Performance p-n Junction Transition Metal Dichalcogenide Photovoltaic Cells Enabled by MoO_x Doping and Passivation.** *Nano letters*
Nassiri Nazif, K., Kumar, A., Hong, J., Lee, N., Islam, R., McClellan, C. J., Karni, O., van de Groep, J., Heinz, T. F., Pop, E., Brongersma, M. L., Saraswat, K. C.
2021

- **Experimental measurement of the intrinsic excitonic wave function.** *Science advances*
Man, M. K., Madeo, J., Sahoo, C., Xie, K., Campbell, M., Pareek, V., Karmakar, A., Wong, E. L., Al-Mahboob, A., Chan, N. S., Bacon, D. R., Zhu, X., Abdelrasoul, et al
2021; 7 (17)
- **Site-Controlled Quantum Emitters in Monolayer MoSe₂.** *Nano letters*
Yu, L., Deng, M., Zhang, J. L., Borghardt, S., Kardynal, B., Vuckovic, J., Heinz, T. F.
2021
- **Tuning electrical and interfacial thermal properties of bilayer MoS₂ via electrochemical intercalation.** *Nanotechnology*
Xiong, F. n., Yalon, E. n., McClellan, C. n., Zhang, J. n., Aslan, O. B., Sood, A. n., Sun, J. n., Andolina, C. M., Al-Saidi, W. A., Goodson, K. E., Heinz, T. n., Cui, Y. n., Pop, et al
2021
- **Ultrafast Adsorbate Excitation Probed with Subpicosecond-Resolution X-Ray Absorption Spectroscopy.** *Physical review letters*
Diesen, E., Wang, H. Y., Schreck, S., Weston, M., Ogasawara, H., LaRue, J., Perakis, F., Dell'Angela, M., Capotondi, F., Giannessi, L., Pedersoli, E., Naumenko, D., Nikolov, et al
2021; 127 (1): 016802
- **Carrier-specific dynamics in 2H-MoTe₂ observed by femtosecond soft x-ray absorption spectroscopy using an x-ray free-electron laser.** *Structural dynamics (Melville, N.Y.)*
Britz, A., Attar, A. R., Zhang, X., Chang, H., Nyby, C., Krishnamoorthy, A., Park, S. H., Kwon, S., Kim, M., Nordlund, D., Sainio, S., Heinz, T. F., Leone, et al
2021; 8 (1): 014501
- **High-resolution optical micro-spectroscopy extending from the near-infrared to the vacuum-ultraviolet** *REVIEW OF SCIENTIFIC INSTRUMENTS*
Ma, E., Waldecker, L., Rhodes, D., Hone, J., Watanabe, K., Taniguchi, T., Heinz, T. F.
2020; 91 (7): 073107
- **Visualizing Energy Transfer at Buried Interfaces in Layered Materials Using Picosecond X-Rays** *ADVANCED FUNCTIONAL MATERIALS*
Nyby, C., Sood, A., Zalden, P., Gabourie, A. J., Muscher, P., Rhodes, D., Mannebach, E., Corbett, J., Mehta, A., Pop, E., Heinz, T. F., Lindenberg, A. M.
2020
- **Retarded Charge-Carrier Recombination in Photoelectrochemical Cells from Plasmon-Induced Resonance Energy Transfer** *ADVANCED ENERGY MATERIALS*
Choi, Y., Lee, B., Jung, M., Han, H., Kim, S., Chen, K., Kim, D., Heinz, T. F., Fan, S., Lee, J., Yi, G., Kim, J., Park, et al
2020
- **Strained bilayer WSe₂ with reduced exciton-phonon coupling** *PHYSICAL REVIEW B*
Asian, O., Deng, M., Brongersma, M. L., Heinz, T. F.
2020; 101 (11)
- **Revealing multiple classes of stable quantum emitters in hexagonal boron nitride with correlated optical and electron microscopy.** *Nature materials*
Hayee, F., Yu, L., Zhang, J. L., Ciccarino, C. J., Nguyen, M., Marshall, A. F., Aharonovich, I., Vuckovic, J., Narang, P., Heinz, T. F., Dionne, J. A.
2020
- **Directly visualizing the momentum-forbidden dark excitons and their dynamics in atomically thin semiconductors.** *Science (New York, N.Y.)*
Madéo, J. n., Man, M. K., Sahoo, C. n., Campbell, M. n., Pareek, V. n., Wong, E. L., Al-Mahboob, A. n., Chan, N. S., Karmakar, A. n., Mariserla, B. M., Li, X. n., Heinz, T. F., Cao, et al
2020; 370 (6521): 1199–1204
- **Tunable infrared light emission from MoS₂/WSe₂ heterostructures**
Karni, O., Barre, E., Lau, S., Gillen, R., Yue, E., Gal, L., Yaffe, T., Kim, B., Watanabe, K., Taniguchi, T., Orenstein, M., Maultzsch, J., Barmak, et al
IEEE.2020
- **Infrared Interlayer Exciton Emission in MoS₂/WSe₂ Heterostructures** *PHYSICAL REVIEW LETTERS*
Karni, O., Barre, E., Lau, S., Gillen, R., Ma, E., Kim, B., Watanabe, K., Taniguchi, T., Maultzsch, J., Barmak, K., Page, R. H., Heinz, T. F.
2019; 123 (24)
- **Infrared Interlayer Exciton Emission in MoS₂/WSe₂ Heterostructures.** *Physical review letters*
Karni, O., Barré, E., Lau, S. C., Gillen, R., Ma, E. Y., Kim, B., Watanabe, K., Taniguchi, T., Maultzsch, J., Barmak, K., Page, R. H., Heinz, T. F.

2019; 123 (24): 247402

- **Rigid Band Shifts in Two-Dimensional Semiconductors through External Dielectric Screening.** *Physical review letters*
Waldecker, L., Raja, A., Rösner, M., Steinke, C., Bostwick, A., Koch, R. J., Jozwiak, C., Taniguchi, T., Watanabe, K., Rotenberg, E., Wehling, T. O., Heinz, T. F.
2019; 123 (20): 206403
- **Rigid Band Shifts in Two-Dimensional Semiconductors through External Dielectric Screening** *PHYSICAL REVIEW LETTERS*
Waldecker, L., Raja, A., Rosner, M., Steinke, C., Bostwick, A., Koch, R. J., Jozwiak, C., Taniguchi, T., Watanabe, K., Rotenberg, E., Wehling, T. O., Heinz, T. F.
2019; 123 (20)
- **Anisotropic structural dynamics of monolayer crystals revealed by femtosecond surface X-ray scattering** *NATURE PHOTONICS*
Tung, I., Krishnamoorthy, A., Sadasivam, S., Zhou, H., Zhang, Q., Seyler, K. L., Clark, G., Mannebach, E. M., Nyby, C., Ernst, F., Zhu, D., Glowonia, J. M., Kozina, et al
2019; 13 (6): 425+
- **Disentangling interface and bulk contributions to high-harmonic emission from solids** *OPTICA*
Vampa, G., Liu, H., Heinz, T. F., Reis, D. A.
2019; 6 (5): 553–56
- **Zeeman-Induced Valley-Sensitive Photocurrent in Monolayer MoS₂.** *Physical review letters*
Zhang, X. X., Lai, Y., Dohner, E., Moon, S., Taniguchi, T., Watanabe, K., Smirnov, D., Heinz, T. F.
2019; 122 (12): 127401
- **Zeeman-Induced Valley-Sensitive Photocurrent in Monolayer MoS₂** *PHYSICAL REVIEW LETTERS*
Zhang, X., Lai, Y., Dohner, E., Moon, S., Taniguchi, T., Watanabe, K., Smirnov, D., Heinz, T. F.
2019; 122 (12)
- **Recording interfacial currents on the subnanometer length and femtosecond time scale by terahertz emission.** *Science advances*
Ma, E. Y., Guzelturk, B., Li, G., Cao, L., Shen, Z., Lindenberg, A. M., Heinz, T. F.
2019; 5 (2): eaau0073
- **Spatial Separation of Carrier Spin by the Valley Hall Effect in Monolayer WSe₂ Transistors.** *Nano letters*
Barre, E., Incorvia, J. A., Kim, S. H., McClellan, C. J., Pop, E., Wong, H. P., Heinz, T. F.
2019
- **An ultrafast symmetry switch in a Weyl semimetal.** *Nature*
Sie, E. J., Nyby, C. M., Pemmaraju, C. D., Park, S. J., Shen, X. n., Yang, J. n., Hoffmann, M. C., Ofori-Okai, B. K., Li, R. n., Reid, A. H., Weathersby, S. n., Mannebach, E. n., Finney, et al
2019; 565 (7737): 61–66
- **THz-Pump UED-Probe on a Topological Weyl Semimetal**
Sie, E. J., Nyby, C. M., Pemmaraju, C. D., Park, S., Shen, X., Yang, J., Hoffmann, M. C., Ofori-Okai, B. K., Li, R., Reid, A. H., Weathersby, S., Mannebach, E., Finney, et al
IEEE.2019
- **Monitoring Charge Separation Dynamics Using THz Emission Spectroscopy**
Guzelturk, B., Ma, E., Li, G., Cao, L., Shen, Z., Heinz, T., Lindenberg, A., IEEE
IEEE.2019
- **Nonlinear Interaction of Rydberg Exciton-Polaritons in Two-Dimensional WSe₂**
Gu, J., Waldecker, L., Rhodes, D., Boehmke, A., Raja, A., Koots, R., Hone, J. C., Heinz, T. F., Menon, V. M., IEEE
IEEE.2019
- **Dielectric disorder in two-dimensional materials.** *Nature nanotechnology*
Raja, A. n., Waldecker, L. n., Zipfel, J. n., Cho, Y. n., Brem, S. n., Ziegler, J. D., Kulig, M. n., Taniguchi, T. n., Watanabe, K. n., Malic, E. n., Heinz, T. F., Berkelbach, T. C., Chernikov, et al
2019
- **Ultrafast dynamics in van der Waals heterostructures** *NATURE NANOTECHNOLOGY*
Jin, C., Ma, E., Karni, O., Regan, E. C., Wang, F., Heinz, T. F.
2018; 13 (11): 994–1003

- **Ultrafast dynamics in van der Waals heterostructures.** *Nature nanotechnology*
Jin, C., Ma, E. Y., Karni, O., Regan, E. C., Wang, F., Heinz, T. F.
2018; 13 (11): 994–1003
- **Resolving Hysteresis in Perovskite Solar Cells with Rapid Flame-Processed Cobalt-Doped TiO₂** *ADVANCED ENERGY MATERIALS*
Kim, J., Chai, S., Ji, Y., Levy-Wendt, B., Kim, S., Yi, Y., Heinz, T. F., Nørskov, J. K., Park, J., Zheng, X.
2018; 8 (29)
- **Enhancement of Exciton-Phonon Scattering from Monolayer to Bilayer WS₂** *NANO LETTERS*
Raja, A., Selig, M., Berghauser, G., Yu, J., Hill, H. M., Rigosi, A. F., Brus, L. E., Knorr, A., Heinz, T. F., Malic, E., Chernikov, A.
2018; 18 (10): 6135–43
- **Strain tuning of excitons in monolayer WSe₂** *PHYSICAL REVIEW B*
Aslan, O., Deng, M., Heinz, T. F.
2018; 98 (11)
- **Efficient generation of neutral and charged biexcitons in encapsulated WSe₂ monolayers.** *Nature communications*
Ye, Z., Waldecker, L., Ma, E. Y., Rhodes, D., Antony, A., Kim, B., Zhang, X., Deng, M., Jiang, Y., Lu, Z., Smirnov, D., Watanabe, K., Taniguchi, et al
2018; 9 (1): 3718
- **Efficient generation of neutral and charged biexcitons in encapsulated WSe₂ monolayers** *NATURE COMMUNICATIONS*
Ye, Z., Waldecker, L., Ma, E., Rhodes, D., Antony, A., Kim, B., Zhang, X., Deng, M., Jiang, Y., Lu, Z., Smirnov, D., Watanabe, K., Taniguchi, et al
2018; 9
- **Controlling the electronic properties of 2D semiconductors by the external environment**
Heinz, T.
AMER CHEMICAL SOC.2018
- **Imaging CF₃I conical intersection and photodissociation dynamics with ultrafast electron diffraction.** *Science (New York, N.Y.)*
Yang, J., Zhu, X., Wolf, T. J., Li, Z., Nunes, J. P., Coffee, R., Cryan, J. P., Gühr, M., Hegazy, K., Heinz, T. F., Jobe, K., Li, R., Shen, et al
2018; 361 (6397): 64-67
- **Colloquium: Excitons in atomically thin transition metal dichalcogenides** *REVIEWS OF MODERN PHYSICS*
Wang, G., Chernikov, A., Glazov, M. M., Heinz, T. F., Marie, X., Amand, T., Urbaszek, B.
2018; 90 (2)
- **Optical Imaging and Spectroscopic Characterization of Self-Assembled Environmental Adsorbates on Graphene** *NANO LETTERS*
Gallagher, P., Li, Y., Watanabe, K., Taniguchi, T., Heinz, T. F., Goldhaber-Gordon, D.
2018; 18 (4): 2603–8
- **Probing the Optical Properties and Strain-Tuning of Ultrathin Mo_{1-x}IT_xITW_{1-x}ITTe₂** *NANO LETTERS*
Aslan, O., Datye, I. M., Mleczko, M. J., Cheung, K., Krylyuk, S., Bruma, A., Kalish, I., Davydov, A. V., Pop, E., Heinz, T. F.
2018; 18 (4): 2485–91
- **Two-dimensional models for the optical response of thin films** *2D MATERIALS*
Li, Y., Heinz, T. F.
2018; 5 (2)
- **Enhancing Mo:BiVO₄ Solar Water Splitting with Patterned Au Nanospheres by Plasmon-Induced Energy Transfer** *ADVANCED ENERGY MATERIALS*
Kim, J., Shi, X., Jeong, M., Park, J., Han, H., Kim, S., Guo, Y., Heinz, T. F., Fan, S., Lee, C., Park, J., Zheng, X.
2018; 8 (5)
- **Ultrafast Graphene Light Emitters** *NANO LETTERS*
Kim, Y., Gao, Y., Shiue, R., Wang, L., Aslan, O., Bae, M., Kim, H., Seo, D., Choi, H., Kim, S., Nemilentsau, A., Low, T., Tan, et al
2018; 18 (2): 934–40
- **Imaging CF₃I conical intersection and photodissociation dynamics with ultrafast electron diffraction** *Science*
Yang, J., Zhu, X., Wolf, T. J., Li, Z., Nunes, J. F., Coffee, R., Cryan, J. P., Gühr, M., Hegazy, K., Heinz, T. F., Jobe, K., Li, R., Shen, et al
2018; 361 (6397): 64-67

- **Temperature-Dependent Thermal Boundary Conductance of Monolayer MoS₂ by Raman Thermometry** *ACS APPLIED MATERIALS & INTERFACES*
Yalon, E., Aslan, O., Smithe, K. H., McClellan, C. J., Suryavanshi, S. V., Xiong, F., Sood, A., Neumann, C. M., Xu, X., Goodson, K. E., Heinz, T. F., Pop, E.
2017; 9 (49): 43013–20
- **Magnetic brightening and control of dark excitons in monolayer WSe₂** *NATURE NANOTECHNOLOGY*
Zhang, X., Cao, T., Lu, Z., Lin, Y., Zhang, F., Wang, Y., Li, Z., Hone, J. C., Robinson, J. A., Smirnov, D., Louie, S. G., Heinz, T. F.
2017; 12 (9): 883+
- **Coulomb engineering of the bandgap and excitons in two-dimensional materials** *NATURE COMMUNICATIONS*
Raja, A., Chaves, A., Yu, J., Arefe, G., Hill, H. M., Rigosi, A. F., Berkelbach, T. C., Nagler, P., Schueller, C., Korn, T., Nuckolls, C., Hone, J., Brus, et al
2017; 8
- **Local Polar Fluctuations in Lead Halide Perovskite Crystals** *PHYSICAL REVIEW LETTERS*
Yaffe, O., Guo, Y., Tan, L. Z., Egger, D. A., Hull, T., Stoumpos, C. C., Zheng, F., Heinz, T. F., Kronik, L., Kanatzidis, M. G., Owen, J. S., Rappe, A. M., Pimenta, et al
2017; 118 (13)
- **High-harmonic generation from an atomically thin semiconductor** *NATURE PHYSICS*
Liu, H., Li, Y., You, Y. S., Ghimire, S., Heinz, T. F., Reis, D. A.
2017; 13 (3): 262-?
- **after Ultrafast Excitation.** *Nano letters*
Ruppert, C., Chernikov, A., Hill, H. M., Rigosi, A. F., Heinz, T. F.
2017; 17 (2): 644-651
- **Polaritons in layered two-dimensional materials** *NATURE MATERIALS*
Low, T., Chaves, A., Caldwell, J. D., Kumar, A., Fang, N. X., Avouris, P., Heinz, T. F., Guinea, F., Martin-Moreno, L., Koppens, F.
2017; 16 (2): 182-194
- **The Role of Electronic and Phononic Excitation in the Optical Response of Monolayer WS₂ after Ultrafast Excitation** *NANO LETTERS*
Ruppert, C., Chernikov, A., Hill, H. M., Rigosi, A. F., Heinz, T. F.
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