

PHILIP KIM

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Education and Training

Seoul National University	Physics	B.S.	1990
Harvard University	Applied Physics	M.A.	1996
Harvard University	Applied Physics	Ph.D.	1999
University of California, Berkeley	Physics	Post-Doctoral Fellow	1999-2001

Appointments

2014 –	Professor, Department of Physics, Harvard University
2009 – 2014	Professor, Department of Physics, Columbia University
2006 – 2009	Associate Professor, Department of Physics, Columbia University
2002 – 2006	Assistant Professor, Department of Physics, Columbia University
1999 – 2001	Miller Postdoctoral Fellow in Physics, University of California, Berkeley

Honors and Awards

Benjamin Franklin Medal in Physics (2023);
Elected member of the American Academy of Arts and Science (2020);
Tomassoni-Chisesi Prizes (2018);
Vannevar Bush Faculty Fellowship (2018);
Experimental Investigator in Quantum Materials Award, Moore Foundation (2014);
Oliver E. Buckley Prize, American Physical Society (2014);
Dresden Barkhausen Award (2012);
Scientist of the Year, Korean-American scientists and Engineers Association (2011);
IBM Faculty Award (2009);
Ho-Am Science Prize (2008);
American Physical Society Fellow (2007);
Columbia University Distinguished Faculty Award (2007);
Recipient Scientific American 50 (2006);
National Science Foundation Faculty Career Award (2004);
Outstanding Young Researcher Award, Association of Korean Physicists in America (2002);
Named Lectures: Abigail and John Van Vleck Lecture, University of Minnesota (2017); Robert Meservey Memorial Lecture, MIT (2016); Rustgi Lecture, State University of New York, Buffalo (2015); Mott Lecturer, Florida State University / NHMFL (2014); Kay Malmstrom Lecture in Physics, Hamline University, (2014); Loeb Lecture, Harvard University (2012); Dresden Barkhausen Award (2012); Yunker Lecture, Oregon State University, (2011); Chapman Lecture, Rice University, (2009);

Publications

Total Publications (More than 278 publications including Nature (13), Science (20), Nature Phys. (11), Nature Nanotech (15), Nature Materials (5), Phys. Rev. Letts (44), Nano Lett. (35), PNAS (6). Total Citation (More than 87,000, h-index: 108 according to Web of Science).

Selected Recent Publications:

1. J. Waissman, L. E. Anderson, A. V. Talanov, Z. Yan, Y. J. Shin, D. H. Najafabadi, T. Taniguchi, K. Watanabe, B. Skinner, K. A. Matveev, P. Kim, "Measurement of Electronic Thermal Conductance in

- Low-Dimensional Materials with Graphene Nonlocal Noise Thermometry,” *Nature Nano*, **17**, 166-173 (2022).
2. X. Liu, J. I. A. Li, K. Watanabe, T. Taniguchi, J. Hone, B. I. Halperin, P. Kim, C. R. Dean, “Crossover between Strongly-coupled and Weakly-coupled Exciton Superfluids,” *Science*, **375**, 205-209 (2022).
 3. Y. Ronen, T. Werkmeister, D. Najafabadi, A. T. Pierce, L. E. Anderson, Y. J. Shin, S. Y. Lee, Y. H. Lee, B. Johnson, K. Watanabe, T. Taniguchi, A. Yacoby, P. Kim, “Aharonov Bohm Effect in Graphene Fabry Perot Quantum Hall Interferometers,” *Nature Nano*, **16**, 563-569 (2021).
 4. Z. Hao, A. M. Zimmerman, P. Ledwith, E. Khalaf, D. H. Najafabadi, K. Watanabe, T. Taniguchi, A. Vishwanath, P. Kim, “Electric field tunable unconventional superconductivity in alternating twist magic-angle trilayer graphene,” *Science* **371**, 1133-1138 (2021).
 5. X. Liu, Z. Hao, E. Khalaf, J. Y. Lee, Y. Ronen, H. Yoo, D. H. Najafabadi, K. Watanabe, T. Taniguchi, A. Vishwanath, P. Kim, “Tunable Spin-polarized Correlated States in Twisted Double Bilayer Graphene,” *Nature* **583**, 221-225 (2020).
 6. L. A. Jauregui, A. Y. Joe, K. Pistunova, D. S. Wild, A. A. High, Y. Zhou, G. Scuri, K. De Greve, A. Sushko, C.-H. Yu, T. Taniguchi, K. Watanabe, D. J. Needleman, M. D. Lukin, H. Park, P. Kim, “Electrical control of interlayer exciton dynamics in atomically thin heterostructures,” *Science* **366**, 870-875 (2019).
 7. X. Liu, Z. Hao, K. Watanabe, T. Taniguchi, B. Halperin, P. Kim, “Interlayer fractional quantum Hall effect in a coupled graphene double-layer,” *Nature Physics* **15**, 893-897 (2019).
 8. S.Y. F. Zhao, N. Poccia, M. G. Panetta, C. Yu, J. W. Johnson, H. Yoo, R. Zhong, G.D. Gu, K. Watanabe, T. Taniguchi, S. V. Postolova, V. M. Vinokur, P. Kim, “Sign reversing Hall effect in atomically thin high temperature superconductors,” *Phys. Rev. Lett.* **122**, 247001 (2019).
 9. H. Yoo, R. Engelke, S. Carr, S. Fang, K. Zhang, P. Cazeaux, S. H. Sung, R. Hovden, A. W. Tsen, T. Taniguchi, K. Watanabe, G.-C. Yi, M. Kim, M. Luskin, E. B. Tadmor, E. Kaxiras and P. Kim, “Atomic and electronic reconstruction at van der Waals interface in twisted bilayer graphene,” *Nature Materials* **18**, 448–453 (2019).
 10. D. K. Bediako, M. Rezaee, H. Yoo, D. T. Larson, S. Y. F. Zhao, T. Taniguchi, K. Watanabe, T. L. Brower-Thomas, E. Kaxiras, P. Kim, “Heterointerface effects in the electro-intercalation of van der Waals heterostructures,” *Nature* **558**, 425–429 (2018)

Synergistic activities:

1. More than 300 keynote speeches, plenary speakers, and invited presentations in academic institutes, industrial institutes, international conferences.
2. Symposium Organizers: the focus session, APS March Meeting, 2004; the focus session, “Thermal, thermoelectric and mass transport at nanoscale” at APS March Meeting, 2006 and the Tutorial session “Graphene Physics;” APS March Meeting, 2007, Advocator of Carbon Electronics; Focused Session Organizers APS March Meeting 2010, Graphene Week 2012. Nano Architech Panel Discussion member 2012, Valleytronics Workshop 2017
3. Advisory Board: ITRS Workshop in 2008, International Advisory Board of ICPS 2010, 2012; Nanotube 2012, Elected Members at Large in APS, 2013-15
4. Associate Editor: *Nano Letter*, American Chemical Society
5. Visiting Chaired Professor in Sungkyunkwan University (SKKUU) (3/2019-present), Seoul National University (3/2012-2/2019) and Ulsan National Institute of Science and Technology, Korea (3/2012-2/2019); Member of Korean Academy of Science and Technology (2011-); Consulting Nakatani Foundation for Advancement of Measuring Technologies in Biomedical Engineering (2018-).

Student and Postdoctoral Fellow Advising

Graduate Thesis: Joshua P. Small (May 2006); Yuanbo Zhang (June 2006); Meninder Purewal (May 2008), Melinda Han (May 2010); Yuri Zuev (January, 2011); Yue Zhao (December 2011); Andrea Young (December 2011); Dmitri Efetov (May 2014); Fereshte Ghahari (July 2014); Patrick Maher (May 2015); Jess Crossno (May, 2017); Carlos Forsythe (July, 2017); Giselle Elbaz (July, 2017); Xiaomeng Liu (October, 2018); Austin Cheng (May 2019); Jing K. Shi (May 2020); Ko-Fan Huang (May 2020); Andrew Y. Joe (May 2021); Frank Zhao (July 2021);

Graduate Thesis in Progress: Rebecca Engelke (Physics); Artem Talanov (Applied Physics); Laurel Anderson (Physics); Zeyu Hao (Physics); Andres Mier Valdivia (Applied Physics); Thomas Werkmeister (Applied Physics); Zhongying Yan (Physics); Alex Cui (Physics); James Ehrets (Physics); Mehdi Rezaee (Applied Physics); Jonathan Zauberman (Physics); Isabelle Phinney (Chemical Physics); Thao Dihn (Physics);

Undergraduate: Jeremy Amai-Dolan (Haveford College), Laura Berzak (Dartmouth), Elizabeth Gabor (Columbia), Laura Newburgh (Barnard College), Nada Petrovic (Columbia), Kerstin Perez (Columbia Univ), Josh Wittenberg (Berkeley), William Pontius (Columbia), Ani Rabi (Columbia), Joel Chudow (Columbia); Asher Mullokandov (Columbia); Solomon Endrich (Columbia), Hechen Ren (Columbia); Charles Starr (Columbia); Steven Carr (Columbia); Minyong Han (Columbia); Giovanni Scuri (Columbia); Achim Harzheim (Harvard); Kateryna Pistunova (Harvard);

Post-doc: Byung Hee Hong (Associate Professor, Department of Chemistry, Seoul National University); Barbaros Oezylmaz (Assistant Professor, Department of Physics, National University of Singapore); Pablo Jarillo-Herrero (Assistant Professor, Department of Physics, MIT); Kirill Bolotin (Assistant Professor, Department of Physics, Vanderbilt University); Namdong Kim (Senior Research Scientist, POSTECH); Keunsoo Kim (Assistant Professor, Department of Physics, Sejong University); Young-Jun Yu (Research Scientist, ETRI); Paul Cadden-Zimansky (Assistant Professor, Department of Physics, Bard College); Vikram Deshpande (Assistant Professor, Department of Physics, University of Utah); Cory Dean (Assistant Professor, Columbia University); Jayakanth Ravichandran (Assistant Professor at University of Southern California); Amelia Barreiro (European Patent Office); Adam Wei Tsen (Assistant Professor, University of Waterloo); Chulho Lee (Assistant Professor, Korea University); Jean-Damien Pillet (Associate Professor, Ecole Polytechnique); Martin Gustafsson (BBN); Ke Wang (Assistant Professor, University of Minnesota); Gil-Ho Lee (Assistant Professor, POSTECH); Hiroshi Idzuchi (Assistant Professor, Tohoku University); Young Jae Shin (BNL); Luis A. Jauregui (Assistant Professor, University of California Riverside); Si Young Lee (Samsung); Hyobin Yoo (Assistant Professor, Seogang University); Nicola Poccia (Group Leader, Leibniz Institute for Solid State and Materials Research Dresden); Hoseok Heo (Samsung); Tamar Mentzel (Assistant Professor, University of California, Riverside); Onder Gul (current); Yuval Ronen (current); Qi Yang (current); Dapeng Ding (current); Antti Laitinen (current); Joon Young park (current); Jonah Waissman (current); Jue Wang (current); Andrew Zimmerman (current);