



**Prof. Philip Kim**  
Harvard University, USA



**Harvard University Department of Physics**

11 Oxford Street, LISE 410, Cambridge, MA02138

Tel: (617) 496-0714; Fax: (617) 495-0416

E-mail: [pkim@physics.harvard.edu](mailto:pkim@physics.harvard.edu); Webpage: [kim.physics.harvard.edu](http://kim.physics.harvard.edu)

## **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**

Robert Meserve Memorial Lecture, MIT (2016); Rustgi Lecture, SUNY Buffalo (2015); Malmstrom Lecture, Hamline University (2014); Oliver E. Buckley Condensed Matter Prize (2014); Loeb Lecture, Harvard University (2012); Dresden Barkhausen Award (2012); Yunker Lecture, Oregon State University, (2011); Scientist of the Year, Korean-American scientists and Engineers Association (2011); Chapman Lecture, Rice University, (2009); 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);



## **Publications**

Total Publications (More than 160 publications including Nature (6), Science (13), Nature Phys. (8), Nature Nanotech (9), Nature Materials (1), Phys. Rev. Letts (34), Nano Lett. (20)).

Total Citation (More than 67,000, h-index: 86 according to Google Scholar).

### **Selected Recent Publications:**

1. D. K. Efetov, L. Wang, C. Handschin, K. B. Efetov, J. Shuang, R. Cava, T. Taniguchi, K. Watanabe, J. Hone, C. R. Dean, and P. Kim, "Specular Interband Andreev Reflections in Graphene," *Nature Physics*, **12**, 328-332 (2016).
2. F. Ghahari, H.-Y. Xie, T. Taniguchi, K. Watanabe, M. S. Foster, P. Kim, "Enhanced thermoelectric power in graphene: violation of the Mott relation by inelastic scattering," *Phys. Rev. Lett.* **116**, 136802 (2016).
3. J. Crossno, J. K. Shi, K. Wang, X. Liu, A. Harzheim, A. Lucas, S. Sachdev, P. Kim, T. Taniguchi, K. Watanabe, T. A. Ohki, K. C. Fong, "Observation of the Dirac fluid and the breakdown of the Wiedemann-Franz law in graphene," *Science* **351**, 1058-1061 (2016).
4. A. W. Tsun, R. Hovden, D. Z. Wang, Y. D. Kim, J. Okamoto, K. A. Spoth, Y. Liu, W. J. Lu, Y. P. Sun, J. Hone, L. F. Kourkoutis, P. Kim, and A. N. Pasupathy, "Structure and Control of Charge Density Waves in Two-Dimensional 1T-TaS<sub>2</sub>," *Proc. Nat. Acad. Sci. USA* **112**, 15054-15059 (2015)
5. C.-H. Lee, G.-H. Lee, A. M. van der Zande, W. Chen, Y. Li, M. Han, X. Cui, G. Arefe, C. Nuckolls, T. F. Heinz, J. Guo, J. Hone, P. Kim, "Atomically thin p-n junctions with van der Waals heterointerfaces," *Nature Nanotechnology* **9**, 676-681 (2014).
6. P. Maher, L. Wang, Y. Gao, C. Forsythe, T. Taniguchi, K. Watanabe, D. Abanin, Z. Papic, P. Cadden-Zimansky, J. Hone, P. Kim, Cory R. Dean, "Tunable Fractional Quantum Hall Phases in Bilayer Graphene," *Science* **345**, 61-64 (2014).
7. C. R. Dean, L. Wang, P. Maher, C. Forsythe, F. Ghahari, Y. Gao, J. Katoch, M. Ishigami, P. Moon, M. Koshino, T. Taniguchi, K. Watanabe, K. L. Shepard, J. Hone, and P. Kim, "Hofstadter's butterfly in moire superlattices: A fractal quantum Hall effect," *Nature* **497**, 598-602 (2013)
8. P. Maher, C. R. Dean, A. F. Young, T. Taniguchi, K. Watanabe, K. L. Shepard, J. Hone, and P. Kim, "Evidence for a Spin Phase Transition at Charge Neutrality in Bilayer Graphene," *Nature Physics*, **9**, 154-158 (2013)
9. A. F. Young, C. R. Dean, L. Wang, H. Ren, P. Cadden-Zimansky, K. Watanabe, T. Taniguchi, J. Hone, K.L. Shepard, and P. Kim, "Spin and valley quantum Hall ferromagnetism in graphene," *Nature Physics*, **8**, 553-556 (2012)
10. Y. Zhao, P. Cadden-Zimansky, F. Ghahari, and P. Kim, "Magnetoresistance Measurements of Graphene at the Charge Neutrality Point," *Phys. Rev. Lett.* **108**, 106804 (2012)



### **Synergistic activities:**

1. More than 250 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, Advocate of Carbon Electronics; Focused Session Organizers APS March Meeting 2010, Graphene Week 2012. Nano Architech Panel Discussion member 2012
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

**Collaborators and Co-Editors (48 months):** Louis Brus (Columbia); S. H. Chun (Sejong); Andre Geim (Manchester); Donhee Ham (Harvard); Tony Heinz (Columbia); James Hone (Columbia); L. Levitov (MIT); Charles Lieber (Harvard); Allan Macdonald (Austin); Colin Nuckolls (Columbia); Rick Osgood (Columbia); Hongkun Park (Harvard); Jiwoong Park (Cornell); Abhay Pasupathy (Columbia); Aron Pinczuk (Columbia); Dan Prober (Yale); Ken Shepard (Columbia); Joe Stroscio (NIST); Takashi Tiniguchi (NIMS); Amire Yacoby (Harvard); Gyu-Chul Yi (SNU);

**Graduate student advisor:** Charles M. Lieber (Harvard).

**Postgraduate-scholar sponsor:** Paul L. McEuen (Berkeley, now at Cornell).

**Graduate Thesis:** Melinda Han (Columbia University Frontier of Science Fellow), Meninder Purewal (Bank of America), Joshua P. Small (Goldman Sachs), Yuanbo Zhang (Professor, Fudan University), Yuri Zuev (IBM – Fishkill), Yue Zhao (Postdoc, NIST), Andrea Young (Assistant Prof., UCSB), Dmitri Efetov (Postdoc, MIT); Fereshte Ghahari (Postdoc, NIST);

**Graduate Thesis in progress** Carolos Fosythe (Columbia); Austin Cheng (Harvard); Frank Zhao (Harvard); Xiaomeng Liu (Harvard); Jesse Crossno (Harvard); Jing Shi (Harvard); Katie Huang (Harvard); Andy Joe (Harvard).

**Postdoc (current and past):** Amelia Barreiro (European Patent Office), Kirill Bolotin (Assistant Professor at Vanderbilt), Paul Cadden-Zimansky (Assistant Professor, Bard College), Hiroshi Iduzuchi (current), Byng Hee Hong (Associate Professor at SKKU), Pablo Jarillo-Herrero (now Assistant Professor at MIT), Gil-Ho Kim (current), Namdong Kim (Research Assistant Professor at POSTECH), Barbaros Oezylmaz (Professor at NSU), Jean-Damien Pillet (current); Jayakanth Ravichandra (Assistant Prof. USC); Young Jun Yoo (ETRI). Ke Wang (current)