

YOUNGKUK KIM

CONTACT INFORMATION	Room 31201 Department of Physics Sungkyunkwan University (SKKU) Suwon, Korea	Phone: +82-(0)31-299-4542 Fax: +82-(0)31-290-7055 E-mail: youngkuk@skku.edu Web: https://ssesclab.net
RESEARCH INTEREST	Topological band theory, topological materials, first-principles calculations, condensed matter theory, low-dimensional materials, energy materials	
EDUCATION	Seoul National University , Seoul, Korea Ph.D. in Condensed Matter Theory (Adviser: Prof. Jisoon Ihm) Seoul National University , Seoul, Korea B.S. in Physic and Mathematics (Dual major)	February 1999 - March 2006 September 2006 - August 2013
ACADEMIC APPOINTMENT	Assistant Professor Department of Physics, SKKU Cooperative Professor Center for Integrated Nanostructure Physics (CINAP) Institute of Basic Science (IBS), SKKU Postdoctoral Researcher LRSM topological insulator (TI) seed University of Pennsylvania (Co-advisers: Prof. Charles L. Kane, Prof. Eugene J. Mele, Prof. Andrew M. Rappe)	March 2017 - present March 2017 - present August 2013 - February 2017
TEACHING EXPERIENCE	General Physics I, II (2017/18/19) Undergraduate General Mechanics I,II (2018) Graduate Classical Mechanics (Spring 2018) Graduate Statistical Mechanics (Fall 2018) Theory of Electronic Structure Calculations (Spring 2017/19) Writing Research Papers and Research Ethics (Spring 2018/19)	
PHD & POSTDOC ADVISING	Yun-Tak Oh (PhD Candidate, 2017 - present) Sunam Jeon (PhD Candidate, 2017 - present) Hongki Nam (PhD, 2017 - 2018, currently researcher in Samsung Electro-Mechanics) Dr. Dongwook Kim (postdoc. 2018, currently postdoc in the Univ. of Texas at Dallas)	
RESEARCH GRANTS	First research in life, National Research Foundation in Korea (NRF) (2017/18); Basic research, NRF Korea (2019); Sungkyun Research fund (2017); Creative research program, Korea Institute of Science and Technology Information (KISTI) (2017/18/19); SKKU start-up grant.	
DEPARTMENT SERVICE	2019 curriculum committee, Brain Korea committee; Vietnam-student recruiting committee; SKKU supercomputer committee; Department-colloquium organizer; Condensed-matter journal-club organizer; Graduate study committee; Second-year students advisor; Umea-SKKU international student exchange program manager.	

12. Yun-Tak Oh[†], Hong-Guk Min, Youngkuk Kim* “Dual topological nodal line and nonsymmorphic Dirac Semimetal in Three Dimensions”
Physical Review B Rapid Communications **99**, 201110(R) (2019)
11. Hyun-Woo Kim[†], Inkyung Son[†], Tae-Hoon Kim[†], Sung Joon Ahn[†], Ha-Chul Shin, Byeong-Seon An, Eun Hye Kim, Ishwor Bahadur Khadka, Sun-Hee Woo*, Youngkuk Kim*, Cheol-Woong Yang*, and Joung Real Ahn* “Millimeter-Scale Growth of Single-Oriented Graphene on a Palladium Silicide Amorphous Film”
ACS Nano, **13**, 1127 (2019)
10. Minwoo Park[†], Youngkuk Kim[†], and Hoonkyung Lee* “Design of 2D massless Dirac fermion systems and quantum spin Hall insulators based on sp² carbon sheet”
npj Computational Materials **4**, 54 (2018)
9. Junyeong Ahn[†], Dongwook Kim, Youngkuk Kim, and Bohm-Jung Yang* “Band topology and linking structure of nodal line semimetals with \mathbb{Z}_2 monopole charge”
Physical Review Letters **121**, 106403 (2018)
8. Heng Gao[†], Youngkuk Kim, Jörn W. F. Venderbos, C. L. Kane, E. J. Mele, Andrew M. Rappe*, and Wei Ren* “The Dirac-Weyl semimetal: Coexistence of Dirac and Weyl fermions in polar hexagonal ABC crystals”
Physical Review Letters **121**, 106404 (2018) – Editor’s suggestion
7. Benjamin J. Wieder[†], Barry Bradlyn[†], Zhijun Wang[†], Jennifer Cano[†], Youngkuk Kim, Hyeong-Seok D. Kim, Andrew M. Rappe, C. L. Kane*, and B. Andrei Bernevig* “Wallpaper Fermions and the Nonsymmorphic Dirac Insulator”
Science, **361**, 246 (2018)
6. Carl H. Naylor[†], William M. Parkin, Jinglei Ping, Zhaoli Gao, Yu Ren Zhou, Youngkuk Kim, Frank Streller, Robert W. Carpick, Andrew M. Rappe, Marija Drndic, James M. Kikkawa, and A. T. Charlie Johnson* “Monolayer single-crystal 1T-MoTe₂ grown by chemical vapor deposition exhibits a weak antilocalization effect”
Nano Letters, **16**, 4297 (2016)
5. Benjamin J. Wieder[†], Youngkuk Kim, Andrew M. Rappe, and Charles L. Kane*, “Double Dirac semimetals in Three Dimensions”
Physical Review Letters **116**, 186402 (2016) – Editor’s suggestion, highlighted in **Nature Physics** **12**, 528 (2016)
4. Dong Liang[†], Youngkuk Kim, Dequan Er, Andrew M. Rappe, and Vivek B. Shenoy* “Two-dimensional π -conjugated covalent-organic frameworks as quantum anomalous Hall topological insulators”
Physical Review Letters **116**, 096601 (2016)
3. Shi Liu[†], Youngkuk Kim, Liang Z. Tan, and Andrew M. Rappe* “Strain induced ferroelectric topological insulator”
Nano Letters **16**, 1663 (2016)
2. Youngkuk Kim[†], Eugene J. Mele, Charles L. Kane, and Andrew M. Rappe* “Layered topological crystalline insulators”
Physical Review Letters **115**, 086802 (2015)
1. Youngkuk Kim[†], Benjamin J. Wieder, Charles L. Kane, and Andrew M. Rappe* “Dirac line node in inversion symmetric crystals”
Physical Review Letters **115**, 036806 (2015)