

# Kyungmin Lee

## Curriculum Vitae

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### Education

- 2009– Present **Candidate for Ph.D. in Theoretical Physics**, *Cornell University*, Ithaca, NY.  
○ Advisor: Prof. Eun-Ah Kim (Dept. of Physics, Cornell)
- 2002–2009 **B.S. in Physics and B.S. in Computer Science and Engineering**, *Seoul National University*, Seoul, Korea.  
○ Graduated with *summa cum laude*  
○ Mandatory military service from 2005 to 2007.

### List of Publications

- [P1] **Kyungmin Lee**, Mark H. Fischer and Eun-Ah Kim, “Signatures of unconventional pairing in near-vortex electronic structure of LiFeAs”, *New J. Phys.* **15**, 053048 (2013).
- [P2] **Kyungmin Lee**, Abolhassan Vaezi, Mark H. Fischer, Eun-Ah Kim, “Superconducting proximity effect in topological metals”, *Phys. Rev. B* **90**, 214510 (2014).
- [P3] Milan P. Allan, **Kyungmin Lee**, Andreas W. Rost, Mark H. Fischer, Freek Masee, Kunihiro Kihou, Chul-Ho Lee, Akira Iyo, Hiroshi Eisaki, Tien-Ming Chuang, J.C. Davis, Eun-Ah Kim, “Identifying the ‘Fingerprint’ of Antiferromagnetic Spin-Fluctuations in Iron-Pnictide Cooper Pairing”, *Nature Phys.* **11**, 177-182 (2015).
- [P4] Zhao Liu, Abolhassan Vaezi, **Kyungmin Lee**, Eun-Ah Kim, “Non-Abelian phases in two-component  $\nu = 2/3$  fractional quantum Hall states: Emergence of Fibonacci anyons”, *Phys. Rev. B* **92**, 081102(R) (2015).
- [P5] **Kyungmin Lee**, Steven Kivelson, Eun-Ah Kim, “Reconciling the coexistence of short range order and cold spots in underdoped cuprates,” (in preparation).
- [P6] **Kyungmin Lee**, Oinam Nganba Meetei, Eun-Ah Kim, “Phase Diagram of Spin-Fermion Model of Cuprates,” (in preparation).
- [P7] **Kyungmin Lee**, Junping Shao, Edward H. Rezayi, Eun-Ah Kim, “Nematic ( $\ell = 2$ ) Pomeranchuk Instability in Composite Fermi Liquid,” (in preparation).
- [P8] **Kyungmin Lee**, Abolhassan Vaezi, Eun-Ah Kim, “Detecting Surface Majorana Mode of  $^3\text{He-B}$  Using Surface Acoustic Waves,” (in preparation).

### Talks and Poster Presentations

- 2015 **Gordon Research Conference on Superconductivity**, Hong Kong, China.  
○ Poster: Reconciling the existence of cold spots with short range charge order
- 2015 **APS March Meeting**, San Antonio, TX.  
○ Talk: Non-abelian phases in two-component  $\nu = 2/3$  FQHS: Emergence of Fibonacci anyons  
○ Talk: What is the role and importance of short range order in cuprates?
- 2014 **Energy Materials Nanotechnology Summer Meeting**, Cancun, Mexico.  
○ Talk: Identifying the ‘Fingerprint’ of Antiferromagnetic Spin-fluctuations in LiFeAs
- 2014 **APS March Meeting**, Denver, CO.  
○ Talk: Superconducting Proximity Effect in Topological Metal
- 2013 **APS March Meeting**, Baltimore, MD.  
○ Talk: Prediction for fingerprints of bosonic modes through self-energy effects in LiFeAs
- 2012 **APS March Meeting**, Boston, MA.  
○ Talk: Local electronic structure near a vortex in LiFeAs within self-consistent BdG

- 2011 **Gordon Research Conference on Superconductivity**, Waterville Valley, NH.  
◦ Poster: Nematicity in 3-band Hubbard model of cuprate superconductors
- 2011 **APS March Meeting**, Dallas, TX.  
◦ Talk: Nematicity in 3-band Hubbard model of cuprate superconductors

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## Research Experience

- 2010 – **Graduate Research Assistant**, *Cornell*, Ithaca, NY.  
Present ◦ Advisor: Prof. Eun-Ah Kim (Dept. of Physics, Cornell)
- 2008 **Undergraduate Research Participation**, *Quantum Field Laser Lab, Optics Group, SNU*, Seoul, Korea.  
◦ Assisted experiments on Single Atom Trapping of  $^{85}\text{Rb}$  using Magneto-Optical Trap.  
◦ Conducted independent research.  
(Topic: Motion of trapped atom under misaligned beams)  
Advisor: Prof. Kyungwon An (Dept. of Physics and Astronomy, SNU)
- 2005 **Quantum Information Science Undergraduate Research Program**, *KIAS*, Seoul, Korea.  
◦ Worked as RA for Quantum Information Processing and Quantum Communication Research.  
◦ Participated in problem solving sessions  
Advisor: Prof. Jaewan Kim (School of Computational Sciences, KIAS)
- 2004 **Experimental Physics Summer Camp for Undergraduate Students**, *Research Center for Oxide Electronics, SNU*, Seoul, Korea.  
◦ Designed and conducted independent research.  
(Topic: Research on Ferromagnetism in Nanoscale using Atomic Force Microscope)  
Advisor: Prof. Tae Won Noh (Dept. of Physics and Astronomy, SNU)

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## Teaching Experience

- 2009 **Teaching Assistant for *Fundamentals of Physics I***, *Cornell*, Ithaca, NY.
- 2008 **Assistant Teacher for College of Engineering Students**, *SNU*, Seoul, Korea.  
◦ Assisted undergraduate students with regular curriculum (3 hours/week).  
◦ Prepared lectures and assignments.
- 2008 **Assistant Teacher for Basic Physics Class**, *SNU*, Seoul, Korea.  
◦ Assisted international undergraduate students in basic physics (4 hours/week).  
◦ Prepared lectures and assignments.

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## Other Academic Experience

- 2014 **Boulder School 2014: Modern Aspects of Superconductivity**, Boulder, CO.
- 2012 **International Summer School: New Trends on Computational Approaches for Many-Body Systems**, *Université de Sherbrooke*, Sherbrooke, Québec, Canada.
- 2005 **Lindau Nobel Laureate Meetings**, Lindau, Germany.  
◦ Selected as Korean delegate for the 55<sup>th</sup> *Meetings of Nobel Laureates at Lindau*  
◦ Attended lectures and discussions with Nobel Laureates
- 2004 **KIAS-SNU Theoretical Physics Winter Camp**, *KIAS and SNU*, Seoul, Korea.  
◦ Attended lectures and conducted group research project on theoretical physics.  
(Project Topic: Quantization of Magnetic Monopole)  
◦ Received best research group award.

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## Awards and Scholarships

- 2015 **Douglas Fitchen Memorial Award**, *Cornell*, Ithaca, NY.
- 2003–2008 **Undergraduate Student Scholarship Program**, *KFAS*, Seoul, Korea.
- 2001 32<sup>nd</sup> **International Physics Olympiad – Silver Medal**, Antalya, Turkey.
- 2000 31<sup>st</sup> **International Physics Olympiad – Honorary Mention**, Leicester, UK.