# Jin-Hong Park

CurriculumVitae Last updated: May 12, 2019


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## Contact

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**Date of Birth** : Dec 18, 1981, Korea


## Position

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| 3/2019 - | Seninor Researcher, Sungkyunkwan University, Korea |
| 4/2016 - 2/2019 | Postdoctoral Researcher, IBS, Seoul National University, Korea |
| 4/2014 - 3/2016 | Postdoctoral Researcher, RIKEN Center for Emergent Matter Science, Japan |

## Education

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|---|---|
| 3/2010 - 2/2014 | **Doctor of Philosophy, Physics**<br>Sungkyunkwan University, Korea<br>*Thesis* :"Emergence of orbital angular momentum in inversion-symmetry-broken system and its applications"<br>*Advisor* : Prof. Jung Hoon Han |
| 9/2006 - 8/2008 | **Master of Science, Physics**<br>Sungkyunkwan University, Korea<br>*Thesis* :"$J_1$-$J_2$ model of planar spins on triangular lattice"<br>*Advisor* : Prof. Jung Hoon Han |
| 3/2000 - 8/2006 | **Bachelor of Science, Physics**<br>Sungkyunkwan University, Korea |

## Brief research statement

I'm generally interested in the theoretical study of emergent phenomena in condensed matter physics, especially worked on

New magnetic ordered phase in planar spin system,
Skyrmion lattice in chiral magnet,
Rashba effect in magnetic metal,
Fractional charge in one-dimensional system,
and Magnetism in Iridates.

## Scientific duty

Referee for Physical Review Letters and Physical Review B

## Research Experiences

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| 8/2007 - 12/2007 | Visiting Student Researcher, University of California, Berkeley |
| 6/2011 - 7/2011 | Participant, International Centre for Theoretical Physics, Trieste, Italy, "Workshop and School on Topological Aspects of Condensed Matter Physics" [Two-weeks workshop and school on topological insulator, non-Abelian quantum Hall states and Majorana fermion in condensed matter physics] |

## Publication List

### Papers

I have 15 publications including 1 in Nature and 4 in Physical Review Letters with 1475 citations (web of science at May. 2019). I also have 1 preprint in arXiv.

1. Jung Hoon Han, **Jin-Hong Park**, Patrick A. Lee
   *"Consideration of Thermal Hall Effect in Undoped Cuprates"*
   arXiv:1903.01125

2. **Jin-Hong Park**, Seung Hun Lee, Choong H. Kim, Hosub Jin, and Bohm-Jung Yang
   *"Two-dimensional Peierls instability via zone-boundary Dirac line nodes in layered perovskite oxides"*
   Phys. Rev. B **99**, 195107 (2019)
   (Peer review)

3. Soohyun Cho, **Jin-Hong Park**, Jisook Hong, Jongkeun Jung, Beom Seo Kim, Garam Han, Wonshik Kyung, Yeongkwan Kim, S.-K. Mo, J. D. Denlinger, Ji Hoon Shim, Jung Hoon Han, Changyoung Kim, Seung Ryong Park
   *"Experimental observation of hidden Berry curvature in inversion-symmetric bulk 2H-WSe2"*
   Phys. Rev. Lett. **121**, 186401 (2018)
   (Peer review)

4. T. Fujita, P. Stano, G. Allison, K. Morimoto, Y. Sato, M. Larsson, **J.-H. Park**, A. Ludwig, A. D. Wieck, A. Oiwa, and S. Tarucha
   *"Signatures of Hyperfine, Spin-Orbit, and Decoherence Effects in a Pauli Spin Blockade"*
   Phys. Rev. Lett. **117**, 206802 (2016)
   (Peer review) 9 citation.

5. **Jin-Hong Park**, Guang Yang, Jelena Klinovaja, Peter Stano, and Daniel Loss
   *"Fractional boundary charges in quantum dot arrays with density modulation"*
   Phys. Rev. B **94**, 075416 (2016)
   (Peer review)

6. Soo-Yong Lee, **Jin-Hong Park**, Gyungchoon Go, Jung Hoon Han
   *"Arbitrary Chern number generation in the three-band model from momentum space"*
   Journal of the Physical Society of Japan **84**, 064005 (2015)
   (Peer review) 6 citation.

7. Yun-Tak Oh, Hyunyong Lee, **Jin-Hong Park**, Jung Hoon Han
   *"Dynamics of magnon fluid in Dzyaloshinskii-Moriya magnet and its manifestation in magnon-Skyrmion scattering"*

Physical Review B **91**, 104435 (2015)
(Peer review) 9 citation.

8. Yun-Tak Oh, Panjin Kim, **Jin-Hong Park**, and Jung Hoon Han
*"Manifold Mixing in the Temporal Evolution of a Spin-1 Spinor Bose-Einstein Condensate"*
Phys. Rev. Lett. **112**, 160402 (2014)
(Peer review) 3 citation.

9. Gyungchoon Go, **Jin-Hong Park** and Jung Hoon Han
*"Three-band model for quantum Hall and spin Hall effects"*
Phys. Rev. B **87**,155112 (2013)
(Peer review) 8 citations.

10. **Jin-Hong Park**, Choong H. Kim, Hyun-Woo Lee and Jung Hoon Han
*"Orbital chirality and Rashba interaction in magnetic bands"*
Phys. Rev. B **87**, 041301(R) (2013)
(Peer review) 39 citations.

11. **Jin-Hong Park**, Choong H. Kim, Jun-Won Rhim and Jung Hoon Han
*"Orbital Rashba effect and its detection by circular dichroism angle-resolved photoemission spectroscopy"*
Phys. Rev. B **85**,195401 (2012)
(Peer review) 30 citations.

12. **Jin-Hong Park** and Jung Hoon Han
*"Zero-temperature phases for chiral magnets in three dimensions"*
Phys. Rev. B **83**, 184406 (2011)
(Peer review) 25 citations.

13. Jung Hoon Han, Jiadong Zang, Zhihua Yang, **Jin-Hong Park** and Naoto Nagaosa
*"Skyrmion Lattice in Two-Dimensional Chiral Magnet"*
Phys. Rev. B **82**, 094429 (2010)
(Peer review) 95 citations.

14. X. Z. Yu, Y. Onose, N. Kanazawa, **J. H. Park**, J. H. Han, Y. Matsui, N. Nagaosa and Y. Tokura
*"Real-space observation of a two-dimensional skyrmion crystal"*
Nature **465**, 901 (2010)
(Peer review) 1010 citations.

15. Gun Sang Jeon, **Jin-Hong Park**, Jae Wook Kim, Kee Hoon Kim, and Jung Hoon Han
*"Theory of magnetic-field-induced critical end point in $BiMn_2O_5$"*
Phys. Rev. B **79**, 104437 (2009)
(Peer review) 5 citations.

16. **Jin-Hong Park**, Shigeki Onoda, Naoto Nagaosa and Jung Hoon Han
*"Nematic and chiral order for planar spins on a triangular lattice"*
Phys. Rev. Lett. **101**, 167202 (2008)
(Peer review) 25 citations.

## Oral presentation

1. *Nonsymmorphic symmetry, zone- boundary Dirac line node and magnetic instability in $Sr_2IrO_4$*
   APS march meeting, Mar. 9, 2018, Los Angeles, CA, USA

2. *Nonsymmorphic symmetry induced-instability and the nature of magnetism in $Sr_2IrO_4$*
   Invited talk in KPS fall meeting, Oct. 26, 2017, Kyung-Ju, Korea

3. *Emergence of orbital angular momentum in inversion symmetry broken system and its applications*
   Seminar in Riken, Sep. 25, 2013, Wako, Japan

4. *Theory of Rashba spin-orbit coupling in magnetic thin film*
   Workshop on Disordered and Topological Systems, Mar. 18-22, 2013, Hangzhou, China

5. *Theory of Rashba spin-orbit coupling in magnetic metal*
   Korean Physical Society Meeting, Oct. 24-25, 2012, Phoenix Park, Korea

6. *Chiral Orbital Angular Momentum and Circular Dichroism ARPES in p- and d-orbital Band*
   APS March meeting, Feb. 27 - Mar 2, 2012, Boston, USA

7. *Skyrmion lattice in 2 and 3 dimensional chiral magnet*
   Kyoto Autumn School, Nov. 8-11, 2010, Kyoto, Japan

## Poster presentation

1. *"Fractional charge in one-dimensional quantum dots array"*
   3rd CEMS topical research camp, Sep. 30-31, 2015, Kinugawa, Japan

2. *"Fractional charge in one-dimensional quantum dots array"*
   5th Summer school on semiconductor physics and quantum Information, Sep. 10-12, 2015, Nasu, Japan

3. *"Quantum dot thermometry at millikelvin temperature"*
   New Perspectives in Spintronic and Mesoscopic Physics, Jun. 10-12, 2015, Kashiwa, Japan

4. *"Quantum dot thermometry at millikelvin temperature"*
   2nd CEMS topical research camp, Oct. 9-10, 2014, Minakami, Japan

5. *"Quantum dot thermometry for millikelvin temperature"*
   4th Summer School on Semiconductor/Superconducting Quantum Coherence Effects and Quantum Information, Sep. 11-13, 2014, Nasu, Japan

6. *"Orbital chirality and Rashba spin-orbit coupling in magnetic metal"*
   Quantum Materials Symposium 2013, Jan. 28- Feb. 02, 2013, Muju, Korea

7. *"Theory of Rashba effect in the magnetic metal"*
   Quantum Condensation, Aug. 13-24, 2012, APCTP Headquarters, Pohang, Korea

8. *"Emergence of Chiral Orbital Angular Momentum and Circular Dichroism ARPES"*
   International Conference on Heavy Electrons and Novel Quantum Phases with A3 meeting, Jul. 5-7, 2012, Gyeungju, Korea

9. *"Circular Dichroism ARPES and Nonzero Chiral Orbital Angular Momentum and in p- and d-orbital Bands"*
   The 9th Workshop for A3 Foresight Program, Dec. 17-21, 2011, Hainan, China

10. *"Possible 3D topological spin structure in chiral magnet"*
    11th KJT Symposium : Also 8th A3 Workshop, Feb. 10-12, 2011, Jeju, Korea

11. *"Skyrmion spin lattice in two-dimensional non-centrosymmetric magnet"*
    2nd APCTP-IACS Joint Conference: International Conference on Physics of Novel Oxide Materials, Jul. 15 17, 2010, Pohang, Korea

12. *"Monte carlo study of the $J_1$-$J_2$ antiferromagnetic $XY$ model on the triangular lattice"*
    Korean Physical Society Meeting, Apr. 19-20, 2007, Phoenix Park, Korea

## References

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