

SangEun Han

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Personal information

Citizenship

Republic of Korea (South Korea)

Education

KAIST (Korea Advanced Institute of Science and Technology)

CANDIDATE OF INTEGRATED MASTER'S AND PH.D PROGRAM IN PHYSICS (EXPECTED GRADUATION DATE: AUGUST 2020)

Daejeon, S.Korea

March 2013 - Present

KAIST (Korea Advanced Institute of Science and Technology)

BACHELOR OF SCIENCE, MAGNA CUM LAUDE, FEBURARY, 2013

Double major in Physics and Mathematical Sciences

Daejeon, S.Korea

Feburary 2010 - Feburary 2013

HanKuk University of Foreign Studies

IN DEPARTMENT OF PHYSICS

Seoul, S.Korea

March 2006 - January 2008

Honors

AWARDS

- | | | |
|------|--|----------------|
| 2018 | Outstanding Poster Award , Workshop on Spin-orbit Coupled Topological states | October 2018 |
| 2018 | Pre-doctoral Fellow of Physics at KAIST , Department of Physics, KAIST | August 2018 |
| 2014 | Spring Outstanding Teaching Assistant Awards , Department of Physics, KAIST | September 2014 |
| 2011 | Presidential Design Award , Fall Semester's Freshmen Design Course Award, KAIST | February 2012 |

SCHOLARSHIPS

- | | | |
|-------------|--|-------------------------|
| 2014 - 2015 | Scholarship , Center for Theoretical Physics, Institute for Basic Science | March 2014 - May 2015 |
| 2006 - 2008 | Scholarship , Hankuk University of Foreign Studies | 2006 Fall - 2008 Spring |

Services

Referee

of Phys. Rev. Research.

January 2020 - Present

Referee

of Phys. Rev. Lett.

April 2019 - Present

Referee

of Phys. Rev. B

September 2018 - Present

Sergent

at Military service at Army in Republic of Korea

February 2008 - January 2010

Publication list

“Lattice vibration as a knob for novel quantum criticality: Emergence of supersymmetry from spin-lattice coupling”

SangEun Han, JUNHYUN, AND EUN-GOOK MOON

arXiv:1911.01435 [cond-mat.str-el]

“Emergent Anisotropic Non-Fermi Liquid at a Topological Phase Transition in Three Dimensions”

SangEun Han, CHANGHEE LEE, HONGKI MIN, AND EUN-GOOK MOON

Phys. Rev. Lett. **122**, 187601. arXiv:1809.10691 [cond-mat.str-el]

“Quantum Criticality with Infinite Anisotropy in Topological Phase Transitions between Dirac and Weyl Semi-metals”

SangEun Han, GIL YOUNG CHO, AND EUN-GOOK MOON

Phys. Rev. B **98**, 085149. arXiv:1804.01547 [cond-mat.str-el]

“Long-range Coulomb Interaction effects on Topological Phase Transitions between Semi-metals and Insulators”

SangEun Han AND EUN-GOOK MOON

Phys. Rev. B **97**, 241101(R). arXiv:1802.05727 [cond-mat.str-el]

“Topological Phase Transitions in Line-nodal Superconductors”

SangEun Han, GIL YOUNG CHO, AND EUN-GOOK MOON

Phys. Rev. B **95**, 094502. arXiv:1601.00975 [cond-mat.str-el]

“Explaining the Lepton Non-universality at the LHCb and CMS from an Unified Framework”

SANJOY BISWAS, DEBTOSH CHOWDHURY, **SangEun Han**, AND SEUNG J. LEE

JHEP **02**, 142 (2015). arXiv:1409.0882 [hep-ph]

MANUSCRIPTS UNDER PREPARATION

“Stability of $O(N)$ criticality with Lattice Vibrations”

SangEun Han AND EUN-GOOK MOON

Presentation

ORAL PRESENTATION

KAIST-Weizmann Workshop on Quantum Condensed Matter Physics

Emergence of Supersymmetry from spin-lattice coupling

Rehovot, Israel

Dec. 5, 2019

2019 KPS Fall Meeting

Quantum criticalities with lattice vibrations

Gwangju, S. Korea

Oct. 25, 2019

APS March Meeting 2019

Emergent Anisotropic Non-Fermi Liquid

Boston, USA

Mar. 4, 2019

11th BK21+ Young Physicists Workshop

Emergent Anisotropic Non-Fermi Liquid

Pohang, S. Korea

Feb. 15, 2019

2018 KPS Spring Meeting

Emergent Anisotropic Non-Fermi Liquid

Daejeon, S. Korea

Apr. 26, 2018

APS March Meeting 2018

Long-range Coulomb Interaction effects on Topological Phase Transitions between Semi-metals and Insulators

Los Angeles, USA

Mar. 7, 2018

2017 KPS Spring Meeting

Topological Phase Transitions in Dirac semi-metals of distorted spinels

Daejeon, S. Korea

Apr. 21, 2017

APS March Meeting 2017

Topological Phase Transitions in Dirac semi-metals of distorted spinels

New Orleans, USA

Mar. 14, 2017

POSTER PRESENTATION

2020 Theory Winter School

Emergence of supersymmetry from spin-lattice coupling

Tallahassee, USA

Jan. 6-10, 2020

IBSPCS-KIAS International Workshop Frustrated Magnetism

Stability of Quantum Criticalities

Daejeon, S. Korea

Oct. 14-18, 2019

The 2nd Workshop on Spin-orbit Coupled Topological States

Stability of Quantum Criticalities

Pohang, S. Korea

Sep. 19-21, 2019

KIAS workshop on Topology and Correlation in quantum materials

Emergent Anisotropic Non-Fermi Liquid at a Topological Phase Transition in Three Dimensions

Busan, S. Korea

May 29-31, 2019

The 19th JAPAN-KOREA-TAIWAN SYMPOSIUM ON STRONGLY CORRELATED ELECTRON SYSTEMS

Long-range Coulomb Interaction effects on Topological Phase Transitions between Semi-metals and Insulators /
Emergent Anisotropic Non-Fermi Liquid

Tokyo, Japan

Jan. 11-13, 2019

The 1st Workshop on Spin-Orbit Coupled Topological States

Long-range Coulomb Interaction effects on Topological Phase Transitions between Semi-metals and Insulators /
Emergent Anisotropic Non-Fermi Liquid

Pohang, S. Korea

Oct. 1-5, 2018

- *Outstanding Poster Award*

Advanced School and Workshop on Correlations in Electron Systems – from Quantum Criticality to Topology - Long-range Coulomb Interaction effects on Topological Phase Transitions between Semi-metals and Insulators / Emergent Anisotropic Non-Fermi Liquid	<i>Trieste, Italy</i> <i>Aug. 6-17, 2018</i>
International Workshop on “New Paradigms in Quantum Matter 2018” Long-range Coulomb Interaction effects on Topological Phase Transitions between Semi-metals and Insulators / Emergent Anisotropic Non-Fermi Liquid	<i>Beijing, China</i> <i>Jun. 24-Jul. 7, 2018</i>
KIAS workshop on Topology and Correlation Long-range Coulomb Interaction effects on Topological Phase Transitions between Semi-metals and Insulators	<i>Seoul, S. Korea</i> <i>Jun. 7-8, 2018</i>
10th BK21+ Young Physicists Workshop Long-range Coulomb Interaction effects on Topological Phase Transitions between Semi-metals and Insulators	<i>Seoul, S. Korea</i> <i>Feb. 8-9, 2018</i>
The 19th International Conference on Recent Progress in Many-Body Theories Long-range Coulomb Interaction effects on Topological Phase Transitions between Semi-metals and Insulators	<i>Pohang, S. Korea</i> <i>Jun. 25-30, 2017</i>
2016 Quantum Materials Symposium Topological Phase Transitions in Line-nodal Superconductors	<i>Incheon, S. Korea</i> <i>Feb. 22-26, 2016</i>

Conferences / Scientific Schools

2020 Theory Winter School	<i>Tallahassee, USA</i> <i>Jan. 6-10, 2020</i>
KAIST-Weizmann Workshop on Quantum Condensed Matter Physics	<i>Rehovot, Israel</i> <i>Dec. 4-5, 2019</i>
2019 KPS Fall Meeting	<i>Gwangju, S. Korea</i> <i>Oct. 23-25, 2019</i>
IBSPCS-KIAS International Workshop Frustrated Magnetism	<i>Daejeon, S. Korea</i> <i>Oct. 14-18, 2019</i>
The 2nd Workshop on Spin-orbit Coupled Topological States	<i>Pohang, S. Korea</i> <i>Sep. 19-21, 2019</i>
KIAS workshop on Topology and Correlation in quantum materials	<i>Busan, S. Korea</i> <i>May 29-31, 2019</i>
Workshop Quantum Many-Body States 2019	<i>Daejeon, S. Korea</i> <i>May 9-10, 2019</i>
Mini-Workshop Exotic Magnetic Phases in Quantum Many-body Systems	<i>Daejeon, S. Korea</i> <i>April 23, 2019</i>
APS March Meeting 2019	<i>Boston, USA</i> <i>Mar. 4-8, 2019</i>
11th BK21+ Young Physicists Workshop	<i>Pohang, S. Korea</i> <i>Feb. 14-15, 2019</i>
The 19th JAPAN-KOREA-TAIWAN SYMPOSIUM ON STRONGLY CORRELATED ELECTRON SYSTEMS	<i>Tokyo, Japan</i> <i>Jan. 11-13, 2019</i>
The 1st Workshop on Spin-Orbit Coupled Topological States	<i>Pohang, S. Korea</i> <i>Oct. 1-5, 2018</i>
KAIST-UCSB-KAERI joint Workshop on Correlated Electronic Systems	<i>Daejeon, S. Korea</i> <i>Sept. 20-21, 2018</i>
Advanced School and Workshop on Correlations in Electron Systems - from Quantum Criticality to Topology -	<i>Trieste, Italy</i> <i>Aug. 6-17, 2018</i>
International Workshop on “New Paradigms in Quantum Matter 2018”	<i>Beijing, China</i> <i>Jun. 24-Jul. 7, 2018</i>

KIAS-KAIST workshop on Topology and Correlation	Seoul, S. Korea Jun. 7-8, 2018
Workshop Quantum Many-Body States 2018	Daejeon, S. Korea Apr. 27-28, 2018
2018 KPS Spring Meeting	Daejeon, S. Korea Apr. 25-27, 2018
APS March Meeting 2018	Los Angeles, USA Mar. 5-9, 2018
10th BK21+ Young Physicists Workshop	Seoul, S. Korea Feb. 8-9, 2018
APCTP Mini-school on Entanglement and Topological Phases of Matter	Pohang, S. Korea Jan. 29-Feb. 1, 2018
The 19th International Conference on Recent Progress in Many-Body Theories	Pohang, S. Korea Jun. 25-30, 2017
4th One-day KIAS Workshop on Recent Progress in Condensed Matter Physics	Seoul, S. Korea May 25, 2017
2017 KPS Spring Meeting	Daejeon, S. Korea Apr. 19-21, 2017
APS March Meeting 2017	New Orleans, USA Mar. 13-17, 2017
Pyeong-Chang Summer Institute 2016	Pyeongchang, S. Korea Jul. 3-9, 2016
2016 KPS Spring Meeting	Daejeon, S. Korea Apr. 20-22, 2016
2016 Quantum Materials Symposium	Incheon, S. Korea Feb. 22-26, 2016
Focus Workshop Topology in Matter	Daejeon, S. Korea Nov. 25-27, 2015
IBS-MultiDark Joint Focus Program: WIMPs and Axions	Daejeon, S. Korea Oct. 10-21, 2014
The 2nd New Physics @ Korea Institute workshop	Jeju, S. Korea Sept. 14-19, 2014
Pyeong-Chang Summer Institute 2014	Pyeongchang, S. Korea Aug. 24-30, 2014
Cargese International School for Theoretical Particle Physics: MultiTeV Probes of the Standard Model and beyond with the LHC	Cargese, France Jul. 14-26, 2014
2014 KIAS-SNU Physics Winter Camp	Pyeongchang, S. Korea Feb. 10-16, 2014
2014 Open KIAS Winter School on Collider Physics	Pyeongchang, S. Korea Jan. 19-25, 2014
Busan Particle Physics Workshop	Busan, S. Korea Oct. 18-19, 2013
19th International Summer Institute on Phenomenology of Elementary Particles and Cosmology	Gurye, S. Korea Aug. 17-23, 2013
Pyeong-Chang Summer Institute 2013	Pyeongchang, S. Korea Jul. 7-13, 2013

2013 Open KIAS Winter School on Collider Physics

Jeongseon, S. Korea

Feb. 17-23, 2013

2013 KIAS-SNU Physics Winter Camp

Pyeongchang, S. Korea

Jan. 20-27, 2013

The 12th Summer Institute for Theoretical Physics

Pohang, S. Korea

Jul. 22-29, 2012

2012 KIAS-SNU Physics Winter Camp

Pyeongchang, S. Korea

Jan. 29-Feb. 5, 2012

Teaching experiences

Teaching Assistants in

- PH504 Graduate Quantum Mechanics 2
- PH503 Graduate Quantum Mechanics 1
- PH496 Colloquium & PH990 Seminar
- PH503 Graduate Quantum Mechanics 1
- PH302 Undergraduate Quantum Mechanics 2
- PH301 Undergraduate Quantum Mechanics 1
- PH654 Quantum Field Theory 2
- PH142 General Physics 2
- PH141 General Physics 1

March 2013 - December 2017

September 2017 - December 2017

March 2017 - June 2017

September 2016 - December 2016

March 2016 - June 2016

September 2015 - December 2015

March 2015 - June 2015

March 2014 - June 2014

September 2013 - December 2013

March 2013 - June 2013

References

Prof. Eun-Gook Moon

DEPARTMENT OF PHYSICS, KOREA ADVANCED INSTITUTE OF SCIENCE AND TECHNOLOGY (KAIST)

291 Daehak-ro, Yuseong-gu, Daejeon 34141, Republic of Korea

Email: egmoon@kaist.ac.kr

Prof. Hongki Min

DEPARTMENT OF PHYSICS AND ASTRONOMY, SEOUL NATIONAL UNIVERSITY

1 Gwanak-ro, Gwanak-gu, Seoul 08826, Republic of Korea

Email: hmin@snu.ac.kr

Prof. Gil Young Cho

DEPARTMENT OF PHYSICS, POHANG UNIVERSITY OF SCIENCE AND TECHNOLOGY (POSTECH)

77 Cheongam-ro, Nam-gu, Pohang 37673, Republic of Korea

Email: gilyoungcho@postech.ac.kr