

JINWON LEE

Postdoctoral Researcher
Department of Quantum Nanoscience, Delft University of Technology (TU Delft)
Email : jinwon.lee@tudelft.nl / jwlee0421@gmail.com
Mobile: +31 (0)6 2010 2576

EDUCATION

- | | | |
|--------------|--|-----------|
| Ph.D. | Pohang University of Science and Technology, Physics
Thesis title: <i>STM Study of 2D Materials with Adsorbates and Topological Excitations under Strong Coulomb Interaction</i>
Advisor: Prof. Han Woong Yeom | Feb. 2021 |
| B.S. | Pohang University of Science and Technology, Physics
(Graduated with Summa Cum Laude) | Feb. 2014 |

EMPLOYMENT

(July 2023 – current) **Postdoctoral Researcher**, Department of Quantum Nanoscience, Kavli Institute of Nanoscience, Delft University of Technology (TU Delft), The Netherlands (supervisor: Prof. Sander F. Otte)

(July 2021 – June 2023) **Postdoctoral Researcher**, Leiden Institute of Physics, Leiden University, The Netherlands (supervisor: Dr. Milan P. Allan)

(Mar. 2021 – June 2021) **Postdoctoral Researcher**, Center for Artificial Low Dimensional Electronic Systems, Institute for Basic Science, Republic of Korea (supervisor: Prof. Han Woong Yeom)

HONORS AND AWARDS

Grant

American Physical Society FECS mini grant (2022)

Fellowship

Global Ph.D. Fellowship from National Research Foundation of Korea (2015-2019)

2015 SK Hynix Fellowship (Mar. 2015 – Feb. 2016)

Awards

Bom-Bi Award, The Korean Physical Society (2022)

Best presentation, The Korean Physical Society Fall Meeting (2016)

PUBLICATIONS

[12] Signatures of an amorphous Shiba band in $\text{FeTe}_{0.55}\text{Se}_{0.45}$

Jinwon Lee, Sanghun Lee, Andreas Kreisel, Jens Paaske, Brian Andersen, Koen Bastiaans, Damianos Chatzopoulos, Genda Gu, Doohee Cho, and Milan P. Allan
(submitted)

[11] Stacking and spin order in a van der Waals Mott insulator 1T-TaS_2

Jae Whan Park, **Jinwon Lee**, and Han Woong Yeom
[Communications Materials 4, 99 \(2023\)](#)

[10] Mobile Kink Solitons in a Van der Waals Charge-Density-Wave Layer

Jinwon Lee, Jae Whan Park, Gil Young Cho, and Han Woong Yeom
[Advanced Materials 35, 2300160 \(2023\)](#)

[9] Distinguishing a Mott Insulator from a Trivial Insulator with Atomic Adsorbates

Jinwon Lee, Kyung-Hwan Jin, and Han Woong Yeom
[Physical Review Letters 126, 196405 \(2021\)](#)

[8] Zoology of domain walls in 2D correlated charge density wave of 1T-TaS_2

Jae Whan Park, **Jinwon Lee**, and Han Woong Yeom
[npj Quantum Materials 6, 32 \(2021\)](#)

[7] Honeycomb-Lattice Mott Insulator on Tantalum Disulphide

Jinwon Lee, Kyung-Hwan Jin, Andrei Catuneanu, Ara Go, Jiwon Jung, Choongjae Won, Sang-Wook Cheong, Jaeyoung Kim, Feng Liu, Hae-Young Kee, and Han Woong Yeom
[Physical Review Letters 125, 096403 \(2020\)](#)

[6] Comment on “Realization of a Metallic State in 1T-TaS_2 with Persisting Long-Range Order of a Charge Density Wave”

Jinwon Lee and Han Woong Yeom
[Physical Review Letters 125, 079701 \(2020\)](#)

[5] Nearly room temperature ferromagnetism in a magnetic-metal-rich van der Waals metal

Junho Seo, Duck Young Kim, Eun Su An, Kyoo Kim, Gi-Yeop Kim, Soo-Yoon Hwang, Dong Wook Kim, Bo Gyu Jang, Heejung Kim, Gyeongsik Eom, Seung Young Seo, Roland Stania, Matthias Muntwiler, **Jinwon Lee**, Kenji Watanabe, Takashi Taniguchi, Youn Jung Jo, Jieun Lee, Byung Il Min, Moon Ho Jo, Han Woong Yeom, Si-Young Choi, Ji Hoon Shim, and Jun Sung Kim
[Science Advances 6, eaay8912 \(2020\)](#)

[4] Emergent Honeycomb Network of Topological Excitations in Correlated Charge Density Wave

Jae Whan Park, Gil Young Cho, **Jinwon Lee**, and Han Woong Yeom
[Nature Communications 10, 4038 \(2019\)](#)

[3] Strong interband interaction in the excitonic insulator phase of Ta_2NiSe_5

Jinwon Lee, Chang-Jong Kang, Man Jin Eom, Jun Sung Kim, Byung Il Min, and Han

Woong Yeom

[Physical Review B **99**, 075408 \(2019\)](#)

[2] Large anomalous Hall current induced by topological nodal lines in a ferromagnetic van der Waals semimetal

Kyoo Kim, Junho Seo, Eunwoo Lee, K.-T. Ko, B. S. Kim, Bo Gyu Jang, Jong Mok Ok, **Jinwon Lee**, Youn Jung Jo, Woun Kang, Ji Hoon Shim, C. Kim, Han Woong Yeom, Byung Il Min, Bohm-Jung Yang, and Jun Sung Kim

[Nature Materials **17**, 794 \(2018\)](#)

[1] Correlated electronic states at domain walls of a Mott-charge-density-wave insulator 1T-TaS₂

Doohee Cho, Gyeongcheol Gye, **Jinwon Lee**, Sung-Hoon Lee, Lihai Wang, Sang-Wook Cheong, and Han Woong Yeom

[Nature Communications **8**, 392 \(2017\)](#)

PRESENTATIONS

[19] (poster) Signatures of an amorphous liquid of impurity states in FeTe_{0.55}Se_{0.45} superconductor

Jinwon Lee, Doohee Cho, Sanghun Lee, Koen M. Bastiaans, Damianos Chatzopoulos, Jens Paaske, Brian M. Andersen, Andreas Kreisel, Genda Gu, and Milan P. Allan, WE-Heraeus-Seminar: Plenty of Room at the Bottom – New Developments in Scanning Probe Tools, Bad Honnef, Germany (November 13 – November 17, 2023)

[18] (oral / poster) Signatures of an amorphous liquid of impurity states in FeTe_{0.55}Se_{0.45} superconductor

Jinwon Lee, Sanghun Lee, Doohee Cho, Koen M. Bastiaans, Damianos Chatzopoulos, Jens Paaske, Brian M. Andersen, Andreas Kreisel, Genda Gu, and Milan P. Allan, The third spins on surfaces (SoS III) workshop, San Sebastian, Spain (September 11 – September 15, 2023)

[17] (poster) Spatially dispersing impurity-driven states in the iron-based superconductor FeTe_{0.55}Se_{0.45}

Jinwon Lee, Sanghun Lee, Koen M. Bastiaans, Damianos Chatzopoulos, Doohee Cho, and Milan P. Allan, Superconductivity Gordon Research Conferences, Les Diablerets, Switzerland (April 30 – May 5, 2023)

[16] (oral) Spatially dispersing impurity-driven states in the iron-based superconductor FeTe_{0.55}Se_{0.45}

Jinwon Lee, Sanghun Lee, Koen M. Bastiaans, Damianos Chatzopoulos, Genda Gu, Doohee Cho, and Milan P. Allan, NWO Physics, Veldhoven, The Netherlands (April 4 – April 5, 2023)

[15] (oral) Spatially dispersing impurity-driven states in the iron-based superconductor FeTe_{0.55}Se_{0.45}

Jinwon Lee, Sanghun Lee, Koen M. Bastiaans, Damianos Chatzopoulos, Genda Gu, Doohee Cho, and Milan P. Allan, American Physical Society March Meeting 2023, Las

Vegas, USA (March 6 – March 10, 2023)

[14] (invited) Josephson scanning tunneling microscopy experiment on the iron-based superconductor $\text{FeTe}_{0.55}\text{Se}_{0.45}$

Jinwon Lee, Sanghun Lee, Koen M. Bastiaans, Damianos Chatzopoulos, Genda Gu, Doohee Cho, and Milan P. Allan, Young researchers online workshop on Topology and Superconductivity in Strongly Correlated f-electron Materials, (27 February – 1 March, 2023, online)

[13] (oral) Atomic Touchstone Distinguishing a Mott Insulator from a Band Insulator

Jinwon Lee, Kyung-Hwan Jin, and Han Woong Yeom, American Physical Society March Meeting 2022, Chicago, USA (14-18 March 2022).

[12] (invited) Realization of the Kane-Mele-Hubbard System in K-adsorbed 1T-TaS₂

Jinwon Lee, Kyung-Hwan Jin, Andrei Catuneanu, Ara go, Jiwon Jung, Choongjae Won, Sang-Wook Cheong, Jaeyoung Kim, Feng Liu, Hae-Young Kee, and Han Woong Yeom, 2021 KPS (Korean Physical Society) Fall Meeting, Virtual meeting (20-22 October 2021)

[11] (invited) Distinguishing between the Mott and band insulating states using atomic adsorbates

Jinwon Lee, Kyung-Hwan Jin, and Han Woong Yeom, The 2nd International Workshop on Scanning Probe Microscopy, Jeju, Korea (9-11 August 2021)

[10] (poster) Realization of a Honeycomb-Lattice Mott Insulating State on 1T-TaS₂

Jinwon Lee and Han Woong Yeom, The 6th International Workshop on 2D Materials (A3 Seoul Meeting), Seoul, Korea (24-25 September 2020, online).

[9] (poster) Topological Falt-Band Honeycomb Lattice in K-adsorbed 1T-TaS₂

Jinwon Lee and Han Woong Yeom, IBS Conference on Surface Atomic Wires, Pohang, Korea (26-29 August 2019).

[8] (oral) Tunneling Spectroscopy of the Excitonic Insulator Phase in Ta₂NiSe₅

Jinwon Lee, Chang-Jong Kang, Man Jin Eom, Jun Sung Kim, Byung Il Min, and Han Woong Yeom, American Physical Society March Meeting 2019, Boston, USA (4-8 March 2019).

[7] (poster) Electronic evidence of the excitonic insulator phase in Ta₂NiSe₅

Jinwon Lee, Chang-Jong Kang, Man Jin Eom, Jun Sung Kim, Byung Il Min, and Han Woong Yeom, The 1st International Workshop on 2D Materials (A3 Tokyo Meeting), Tokyo, Japan (15-17 November 2018).

[6] (poster) Honeycomb lattice Mott insulator in K-adsorbed 1T-TaS₂

Jinwon Lee and Han Woong Yeom, The 3rd Asia-Pacific Symposium in Solid Surfaces & Cross-Strait Symposium on Solid Surfaces, Pohang, Korea (20-23 August 2018).

[5] (oral) Honeycomb lattice Mott insulator in K-adsorbed 1T-TaS₂

Jinwon Lee, Lihai Wang, Sang-Wook Cheong, and Han Woong Yeom, The Korean Physical Society Spring Meeting 2018, Daejeon, Korea (25-27 April 2018).

[4] (oral) Realization of a honeycomb lattice Mott insulator; K-adsorbed 1T-TaS₂
Jinwon Lee, Lihai Wang, Sang-Wook Cheong, and Han Woong Yeom, The 9th International Workshop on Nanoscale Spectroscopy and Nanotechnology, Gyeongju, Korea (25-28 September 2017).

[3] (poster) Direct measurement of the excitonic energy gap of Ta₂NiSe₅ single crystal
Jinwon Lee, Chang-Jong Kang, Man Jin Eom, Jun Sung Kim, Byung Il Min, and Han Woong Yeom, The 16th International Conference on the Formation of Semiconductor Interfaces, Hanover, Germany (3-7 July 2017).

[2] (oral) Scanning tunneling microscopy / spectroscopy study on excitonic insulating phase in Ta₂NiSe₅ single crystals
Jinwon Lee, Chang-Jong Kang, Man Jin Eom, Jun Sung Kim, Byung Il Min, and Han Woong Yeom, The Korean Physical Society Fall Meeting 2016, Gwangju, Korea (19-21 October 2016).

[1] (oral) Direct observation of delocalized exciton state in Ta₂NiSe₅: a direct evidence of the excitonic insulator state
Jinwon Lee, The 50th Winter Annual Conference of the Korean Vacuum Society, Hoengseong, Korea (17-19 February 2015).