CURRICULUM VITAE

Hoyeon JEON

CONTACT INFORMATION

Scanning Tunneling Microscopy Group
Center for Nanophase Materials Sciences
Oak Ridge National Laboratory, PO Box 2008
MS 6493, Oak Ridge, Tennessee, 37830, USA

Tel : +1-865-371-4074
E-mail: jeonh@ornl.gov

CITIZENSHIP

Republic of Korea

EDUCATION

Seoul National University, Seoul, Korea
Ph. D. Department of Physics & Astronomy (September 2013 – August 2020)
Thesis Title: "Paring mechanism study of 1 unit-layer FeSe on $SrTiO_3$ using cryogenic scanning tunneling microscope."
Advisor: Professor Young KUK

Seoul National University, Seoul, Korea
B. S. in Electrical and Computer Engineering, cum laude (March 2001 - February 2009) (military service in between)

PUBLICATIONS

11. **Hoyeon Jeon**, Saban Hus, Jewook Park, An-Ping Li, Wavefront distortion correction in scanning tunneling microscope image, submitted to Review of Scientific Instruments (2023)

10. John W. Villanova, Saban Hus, Seoung-Hun Kang, **Hoyeon Jeon**, An-Ping Li, David Mandrus, Zheng Gai, Mina Yoon, Surface structure and ghost state of the charge density wave kagome metal ScV6Sn6, submitted to Applied Surface Science (2023)

9. Wonhee Ko, Seoung-Hun Kang, Jason Lapano, Hao Chang, Jacob Teeter, **Hoyeon Jeon**, Matthew Brahlek, Mina Yoon, Robert G. Moore, An-Ping Li, Interplay between Topological States and Rashba States as Manifested on Surface Steps at Room Temperature, submitted to ACS Nano (2024)

8. Qiangsheng Lu, P. V. Sreenivasa Reddy, **Hoyeon Jeon**, Alessandro R. Mazza, Matthew Brahlek, Weikang Wu, Shengyuan A. Yang, Jacob Cook, Clayton Conner, Xiaoqian Zhang, Amarnath Chakraborty, Yueh-Ting Yao, Hung-Ju Tien, Chun-Han Tseng, Po-Yuan Yang, Shang-Wei Lien, Hsin Lin, Tai-Chang Chiang, Giovanni Vignale, An-Ping Li, Tay-Rong Chang, Rob G. Moore, Guang Bian, Direct Observation of 2D Weyl Fermion States in a Spin-Valley Polarized Semimetal, submitted to Nature Materials (2023)

7. Seoung-Hun Kang, Haoxiang Li, William R. Meier, John W. Villanova, Saban Hus, **Hoyeon Jeon**, Hasitha W. Suriya Arachchige, Qiangsheng Lu, Zheng Gai, Jonathan Denlinger, Rob Moore, Mina Yoon, David Mandrus, Emergence of a new band and the Lifshitz transition in kagome metal ScV6Sn6 with charge density wave, Arxiv (2023)

6. **Hoyeon Jeon**†, M. Lee†, J. Bok†, M. Oh, S. Lee, Z. Chao, I. Zoe, J. Seo, Y. Bang, J. Chae, H. Choi*, and Y. Kuk*, Spectroscopic determination of pairing interaction for enhanced superconductivity in interface-engineered FeSe on SrTiO3, under revise and preparing to resubmit to Nature Communications (2023)

5. Robert G. Moore, Qiangsheng Lu, **Hoyeon Jeon**, Xiong Yao, Tyler Smith, Yun-Yi Pai, Michael Chilcote, Hu Miao, Satoshi Okamoto, An-Ping Li, Seongshik Oh, Matthew Brahlek, Monolayer Superconductivity and Tunable Topological Electronic Structure at the Fe(Te,Se)/Bi2Te3 Interface, Advanced Materials, 2210940 (2023)

4. Si-Hong Lee, Youngjae Kim, Beopgil Cho, Jaemun Park, Min-Seok Kim, Kidong Park, **Hoyeon Jeon**, Minkyung Jung, Keeseong Park, JaeDong Lee & Jungpil Seo, Spin-polarized and possible pseudospin-polarized scanning tunneling microscopy in kagome metal FeSn, Communications Physics, Volume 5, 235 (2022)

3. Lee Minjun, Oh Myungchul, **Jeon Hoyeon**, Yi Sunwouk, Zoh Inhae, Zhang Chao, Chae Jungseok, Kuk Young, Selective resolution of phonon modes in STM-IETS on clean and oxygen-adsorbed Cu(100) surfaces, Surface Science, Volume 689, 121451 (2019)

2. S Kim, S Yi, M Oh, B G Jang, W Nam, Y-C Yoo, M Lee, **Hoyeon Jeon,** I Zoh, H Lee, C Zhang, K H Kim, J Seo, J H Shim, J Chae, and Y Kuk, Surface reconstruction and charge modulation in BaFe2As2 superconducting film, Journal of Physics: Condensed Matter, 30, 315001 (2018)

1. Chao Zhang, **Hoyeon Jeon**, Myungchul Oh, Minjun Lee, Sungmin Kim, Sunwouk Yi, Hanho Lee, Inhae Zoh, Yongchan Yoo, and Young Kuk, Development of a wideband amplifier for cryogenic scanning tunneling microscopy, Review of Scientific Instruments 88, 066109 (2017)

CONFERENCES MEETINGS

7. **Hoyeon Jeon**, “Doping induced superconductivity in topological insulator SnBi2Te4”, APS March Meeting, March 3-8, 2024, Minneapolis, Minnesota, USA

6. **Hoyeon Jeon**, “Revealing the nature of doping induced superconductivity in topological insulator SnBi2Te4 via mK-STM”, CNMS Postdoc Seminar Series, November 3, 2023, Oak Ridge, Tennessee, USA

5. **Hoyeon Jeon**, Wonhee Ko, Matthew Brahlek, R. G. Moore, An-Ping Li, “STM study of superconducting film Fe(Te,Se) on topological insulator Bi2Te3”, AVS68, November 6-11, 2022, Pittsburgh, Pennsylvania, USA

4. **Hoyeon Jeon,** Y. Kuk**,** “Spin polarized scanning tunneling microscopy with EuS coated W tip.” APS March Meeting, March 4–8, 2019, Boston, Massachusetts, USA

3. **Hoyeon Jeon,** Y. Kuk, **"**Preparation of bulk Cr tips for spin polarized STM," Workshop on Advanced Scanning Probe Microscopy (ASPM), August 16-18, 2018, Busan, Korea

2. **Hoyeon Jeon,** Y. Kuk, **"**Spin polarized STM imaging of Fe/W and FeSe/STO," International Conference on Nanoscience + Technology (ICN+T), July 22-27, 2018, Czech Republic

1. **Hoyeon Jeon,** Y. Kuk, "Detection of microsecond time scale dynamics excited by pulse laser using scanning tunneling microscope with cryogenic amplifier," 20th International Vacuum Congress (IVC-20), August 21-26, 2016, Busan, Korea

PROFESIONAL EXPERIENCE

Postdoctoral Research Associate, STM group, CNMS, ORNL, USA (2021 ~ present)
Supervisor: An-Ping Li

Postdoctoral Research Associate, NanoSPM Lab, DGIST, Korea (2020 ~ 2021)
Supervisor: Jungphil Seo

Research Assistant, Seoul National University (2015 ~ 2020)
Measure and analyze phonon modes related to the superconductivity of 1UL FeSe on $SrTiO_3$, Fabricate and compare spin-polarized tips (Fe coated W tip, bulk Cr tip, EuS coated W tip) with Fe island on W(110) surface

Teaching Assistant, Seoul National University (2013 ~ 2016)
Courses: General Physics, Quantum Theory and Human Civilization

RESEARCH INTEREST

Nanoscale properties in low dimensions: Geometric-, electronic-, magnetic-, vibrational-structures, transport properties, fluctuation, screening, carrier scattering, collective excitation, localization and antilocalization in many-electron systems, and phase transition. Energy transfer among quantum structures. Synthesis of one or zero-dimensional structures. New measurement tools in the nanometer scale and scanning probe microscopy.

REFERENCES

An-Ping Li
GL-RPR Scanning Tunneling Microscopy, CNMS, Oak Ridge National Laboratory
apli@ornl.gov

Young KUK
President, Daegu Gyeongbuk Institute of Science and Technology (DGIST)
Daegu 42988, S. Korea
ykuk@dgist.ac.kr

Jungphil SEO
Associate Professor,
Nanospm Lab, Deaprtment of Emergent Material Sciences, DGIST
Daegu 42988, S. Korea
jseo@dgist.ac.kr