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EDUCATION

Ph.D (Materials Science & Engineering) , University of Michigan, Ann Arbor, MI	Aug. 2023
M. S. (Materials Science & Engineering) , University of Michigan, Ann Arbor, MI	Dec. 2020
B. S. (Engineering Physics) , Cornell University, Ithaca, NY	Jan. 2016

RESEARCH EXPERIENCES

El Baggari Lab, The Rowland Institute at Harvard, Harvard University

Postdoctoral Fellow

Nov.2023 – Current

Research Emphasis: Transmission Electron Microscopy of Quantum Materials

- In-situ electron microscopy for 2D Materials and superconducting thin-film
- Liquid helium temperature electron microscopy

Hovden Lab, University of Michigan

Research Associate

Aug. 2023 – Nov. 2023

Graduate Student Research Assistant

Apr. 2016 – Aug. 2023

Research Emphasis: Transmission Electron Microscopy of Quantum 2D Materials.

- In-situ high-temperature 4D-STEM of 2D Materials
- Electron Diffraction of twisted 2D Materials
- 3D Diffraction of 2D Materials
- Theory of Aberration Corrected Electron Tomography
- Development of ultra-low temperature in-situ TEM holder

Kourkoutis Electron Microscopy Group, Cornell University

Visiting Scientist

Jan. 2016 – Jun 2016

Undergraduate Researcher, Kourkoutis Electron Microscopy Group

Feb. 2014 – Dec. 2015

Research Emphasis: Electron Microscopy of epitaxial thin-films

- Performed STEM and EDS to examine and confirm the epitaxial growth of the film and separation of the YbAl₃ layer from the intermediate buffer layers.
[Chatterjee, et al. Journal of Applied Physics, 120, 035105 (2016)]
- Preparation of electron-transparent (S)TEM specimen via tripod polishing technique
- Multislice simulation of STEM

PUBLICATIONS (H-INDEX: 14, [GOOGLE SCHOLAR](https://scholar.google.com/citations?user=ssung))

28. M.-K. Choi, **S. H. Sung**, R. Hovden, and E. B. Tadmor “Elastic plate basis for the deformation and electron diffraction of twisted bilayer graphene on a substrate”, **Accepted (Physical Review B)** (2024)
27. S. Li, Z. Sun, N. J. McLaughlin, A. Sharmin, N. Agarwal, M. Huang, **S. H. Sung**, H. Lu, S. Yan, H. Lei, R. Hovden, H. Wang, H. Chen, L. Zhao, and C. R. Du “Observation of stacking engineered magnetic phase transitions within moiré supercells of twisted van der Waals magnets”, **In Press (Nature Communications)** (2024)
26. E. Rennich*, **S. H. Sung***, N. Agarwal, M. Gates, R. Kerns, R. Hovden, and I. El Baggari “Ultra-Cold Cryogenic TEM with Liquid Helium and High Stability”, **Under Review** (2024) [[10.48550/arXiv.2402.00636](https://arxiv.org/abs/10.48550/arXiv.2402.00636)]

25. X. Guo, W. Liu, J. Schwartz, **S. H. Sung**, D. Zhang, M. Shimizu, A. L. N. Kondusamy, L. Li, K. Sun, H. Deng, H. O. Jeschke, I. I. Mazin, R. Hovden, B. Lv, and L. Zhao “Extraordinary Phase Transition Revealed in a van der Waals Antiferromagnet”, **Under Review** (2023) [[10.48550/arXiv.2309.01047](https://arxiv.org/abs/10.48550/arXiv.2309.01047)]
24. **S. H. Sung**, N. Agarwal, I. El Baggari, Y. M. Goh, P. Kezer, N. Schnitzer, Y. Liu, W. Lu, Y. P. Sun, L. F. Kourkoutis, J. T. Heron, K. Sun, and R. Hovden “Endotaxial Stabilization of 2D Charge Density Waves with Long-range Order”, **Nature Communications** **15**, 1403 (2023) [[10.1038/s41467-024-45711-3](https://doi.org/10.1038/s41467-024-45711-3)]
23. M. Huang, Z. Sun, G. Yan, H. Xie, N. Agarwal, G. Ye, **S. H. Sung**, H. Lu, J. Zhou, S. Yan, S.-J. Tian, H. Lei, R. Hovden, R. He, H. Wang, L. Zhao, and C. R. Du “Revealing intrinsic domains and fluctuations of moiré magnetism by a wide-field quantum microscope”, **Nature Communications** **14**, 5259 (2023) [[10.1038/s41467-023-40543-z](https://doi.org/10.1038/s41467-023-40543-z)]
22. H. Xie, X. Luo, Z. Ye, Z. Sun, G. Ye, **S. H. Sung**, H. Ge, S. Yan, Y. Fu, S. Tian, H. Lei, K. Sun, R. Hovden, R. Hui, and L. Zhao “Evidence of Noncollinear Spin Texture in Magnetic Moiré Superlattices”, **Nature Physics** (2023) [[10.1038/s41567-023-02061-z](https://doi.org/10.1038/s41567-023-02061-z)]
21. X. Guo, R. Owen, A. Kaczmarek, X. Fang, C. De, Y. Ahn, W. Hu, N. Agarwal, **S. H. Sung**, R. Hovden, S.-W. Cheong, and L. Zhao “Ferro-rotational domain walls revealed by electric quadrupole second harmonic generation microscopy”, **Physical Review B** (2023) [[10.1103/PhysRevB.107.L180102](https://doi.org/10.1103/PhysRevB.107.L180102)]
20. E. Ahn, B. Kim, S. Park, A. L. Erwin, **S. H. Sung**, R. Hovden, S. Mosalaganti, and U.-S. Cho “Batch Production of High-Quality Graphene Grids for Cryo-EM: Cryo-EM Structure of Methylococcus capsulatus Soluble Methane Monooxygenase Hydroxylase”, **ACS Nano** (2023) [[10.1021/acsnano.3c00463](https://doi.org/10.1021/acsnano.3c00463)]
19. **S. H. Sung** and R. Hovden “On Infinite Series of Bessel functions of the First Kind: $\sum_{\nu} J_{N\nu+p}(x)$, $\sum_{\nu} (-1)^{\nu} J_{N\nu+p}(x)$ ”, **arXiv** (2022) [[10.48550/arXiv.2211.01148](https://arxiv.org/abs/10.48550/arXiv.2211.01148)]
18. B. Yang, Y. M. Goh, **S. H. Sung**, G. Ye, S. Biswas, D. A. S. Kaib, R. Dhaka, S. Yan, C. Li, S. Jiang, F. Chen, H. Lei, R. Valent, S. M. Winter, R. Hovden, and A. W. Tsen “Magnetic anisotropy reversal driven by structural symmetry-breaking in monolayer α -RuCl₃”, **Nature Materials** **22**, 50–57 (2023) [[10.1038/s41563-022-01401-3](https://doi.org/10.1038/s41563-022-01401-3)]
17. **S. H. Sung**, Y. M. Goh, H. Yoo, R. Engelke, H. Xie, K. Zhang, Z. Li, A. Ye, P. B. Deotare, E. B. Tadmor, A. J. Mannix, J. Park, L. Zhao, P. Kim, and R. Hovden “Torsional Periodic Lattice Distortions and Diffraction of Twisted 2D Materials”, **Nature Communications** **13**, 7826 (2022) [[10.1038/s41467-022-35477-x](https://doi.org/10.1038/s41467-022-35477-x)]
16. W. Liu, X. Guo, J. Schwartz, H. Xie, N. U. Dhale, **S. H. Sung**, A. L. N. Kondusamy, X. Wang, H. Zhao, D. Berman, R. Hovden, L. Zhao, and B. Lv “A Three-Stage Magnetic Phase Transition Revealed in Ultrahigh-Quality van der Waals Bulk Magnet CrSBr”, **ACS Nano** **16**, 15917–15926 (2022) [[10.1021/acsnano.2c02896](https://doi.org/10.1021/acsnano.2c02896)]
15. **S. H. Sung**, N. Schnitzer, W. Millsaps, L. F. Kourkoutis, and R. Hovden “Ronchigram Simulation and Aberration Correction Training Using Ronchigram.com”, **Microscopy Today** **30**, 5, 40–43 (2022) [[10.1017/S1551929522001043](https://doi.org/10.1017/S1551929522001043)]
14. **S. H. Sung**, N. Schnitzer, S. Novakov, I. El Baggari, X. Luo, J. Gim, N. M. Vu, Z. Li, T. H. Brintlinger, Y. Liu, W. Lu, Y. P. Sun, P. Deotare, K. Sun, L. Zhao, L. F. Kourkoutis, J. T. Heron, and R. Hovden “Two-dimensional charge order stabilized in clean polytype heterostructures”, **Nature Communications** **13**, 413 (2022) [[10.1038/s41467-021-27947-5](https://doi.org/10.1038/s41467-021-27947-5)]
13. A. J. Mannix, A. Ye, **S. H. Sung**, A. Ray, F. Mujid, C. Park, M. Lee, J.-H. Kang, R. Shreiner, A. A. High, D. A. Muller, R. Hovden, and J. Park “Robotic Four-Dimensional Pixel Assembly of van der Waals Solids”, **Nature Nanotechnology** (2022) [[10.1038/s41565-021-01061-5](https://doi.org/10.1038/s41565-021-01061-5)]
12. H. Xie, X. Luo, G. Ye, Z. Ye, H. Ge, **S. H. Sung**, E. Rennich, S. Yan, Y. Fu, S. Tian, H. Lei, R. Hovden, K. Sun, R. He, and L. Zhao “Twist engineering of the two-dimensional magnetism in double bilayer chromium triiodide homostructures”, **Nature Physics** **18**, 30–36 (2022) [[10.1038/s41567-021-01408-8](https://doi.org/10.1038/s41567-021-01408-8)]

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10. P. Meisenheimer, R. A. Steinhardt, **S. H. Sung**, L. D. Williams, S. Zhuang, M. E. Nowakowski, S. Novakov, M. M. Torunbalci, B. Prasad, C. J. Zollner, Z. Wang, N. M. Dawley, J. Schubert, A. H. Hunter, S. Manipatruni, D. E. Nikonov, I. A. Young, L. Q. Chen, J. Bokor, S. A. Bhave, R. Ramesh, J.-M. Hu, E. Kioupakis, R. Hovden, D. G. Schlom, and J. T. Heron "Engineering new limits to magnetostriction through metastability in iron-gallium alloys", **Nature Communications** **12**, 2757 (2021) [[10.1038/s41467-021-22793-x](#)]
9. R. Yalisove*, **S. H. Sung***, P. Ercius, and R. Hovden "The Limits of Resolution and Dose for Aberration-Corrected Tomography", **Physical Review Applied** **15**, 014003 (2021) [[10.1103/PhysRevApplied.15.014003](#)] [**Editors Choice**]
8. N. Schnitzer*, **S. H. Sung***, and R. Hovden "Optimal STEM Convergence Angle Selection using a Convolutional Neural Network and Strehl Ratio", **Microscopy and Microanalysis** **26**, 52, 160–161 (2020) [[10.1017/S1431927620001841](#)]
7. P. B. Meisenheimer, L. D. Williams, **S. H. Sung**, J. Gim, P. Shafer, G. N. Kotsonis, J.-P. Maria, M. Trassin, R. Hovden, E. Kioupakis, and J. T. Heron "Magnetic frustration control through tunable stereochemically driven disorder in entropy-stabilized oxides", **Physical Review Materials** **3**, 10, 104420 (2019) [[10.1103/PhysRevMaterials.3.104420](#)]
6. Y. Wang, Y. Wu, J. Schwartz, **S. H. Sung**, R. Hovden, and Z. Mi "A Single-Junction Cathodic Approach for Stable Unassisted Solar Water Splitting", **Joule** **3**, 10, 2444–2456 (2019) [[10.1016/j.joule.2019.07.022](#)]
5. **S. H. Sung***, N. Schnitzer*, L. Brown, J. Park, and R. Hovden "Stacking, strain, and twist in 2D materials quantified by 3D electron diffraction", **Physical Review Materials** **3**, 6, 064003 (2019) [[10.1103/PhysRevMaterials.3.064003](#)]
4. N. Schnitzer, **S. H. Sung**[†], and R. Hovden "Introduction to the Ronchigram and its Calculation with Ronchigram.com", **Microscopy Today** **27**, 3, 12–15 (2019) [[10.1017/S1551929519000427](#)]
3. H. Yoo, R. Engelke, S. Carr, S. Fang, K. Zhang, P. Cazeaux, **S. H. Sung**, R. Hovden, A. W. Tsen, T. Taniguchi, K. Watanabe, G.-C. Yi, M. Kim, M. Luskin, E. B. Tadmor, E. Kaxiras, and P. Kim "Atomic and electronic reconstruction at the van der Waals interface in twisted bilayer graphene", **Nature Materials** **18**, 5, 448–453 (2019) [[10.1038/s41563-019-0346-z](#)]
2. S. Chatterjee, **S. H. Sung**, D. J. Baek, L. F. Kourkoutis, D. G. Schlom, and K. M. Shen "Epitaxial growth and electronic properties of mixed valence YbAl₃ thin films", **Journal of Applied Physics** **120**, 3, 035105 (2016) [[10.1063/1.4958336](#)]
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CONFERENCE ABSTRACTS

32. **S. H. Sung**, N. Agarwal, I. El Baggari, Y. M. Goh, P. Kezer, N. Schnitzer, Y. Liu, W. Lu, Y. P. Sun, L. F. Kourkoutis, K. Sun, J. T. Heron, and R. Hovden "Endotaxial Polytype Engineering: Enhancement of Incommensurate Charge Density Waves in TaS₂", **Materials Research Society** (2024)

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31. **S. H. Sung**, N. Schnitzer, J. L. Hart, A. Dabak-Wakankar, I. El Baggari, J. J. Cha, L. F. Kourkoutis, and R. Hovden “Imaging Mobility of Charge Order Topology via Charge Density Wave Interferometry”, **Materials Research Society** (2024)
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29. W. Millsaps, **S. H. Sung**, N. Schnitzer, L. F. Kourkoutis, and R. Hovden “Ronchigram Simulation and Aberration Correction Training using Ronchigram.com”, **Microscopy and Microanalysis 29 (S1)**, 1911–1912 (2023)
28. **S. H. Sung**, P. Kezer, N. Agarwal, Y. M. Goh, N. Schnitzer, I. El Baggari, K. Sun, L. F. Kourkoutis, J. T. Heron, and R. Hovden “Endotaxial Polytype Engineering: Enhancement of Incommensurate Charge Density Waves in TaS₂”, **Microscopy and Microanalysis 29 (S1)**, 1646–1647 (2023)
27. **S. H. Sung** and R. Hovden “The Structure of Charge Density Waves in TaS₂ across Temperature and Dimensionality”, **Microscopy and Microanalysis 29 (S1)**, 1694 (2023)
26. N. Agarwal, **S. H. Sung**, J. Schwartz, N. Schnitzer, Z. Xi, J. Hung, I. El Baggari, L. F. Kourkoutis, L. Qi, A. Van der Ven, and R. Hovden “Native Intercalant Order in TaS₂ Achieved Through in situ Thermal Heating”, **Microscopy and Microanalysis 29 (S1)**, 1583–1584 (2023)
25. M. Shah, **S. H. Sung**, and R. Hovden “An Atlas of Fourier Transforms”, **Microscopy and Microanalysis 29 (S1)**, 1404–1405 (2023)
24. **S. H. Sung**, N. Schnitzer, A. Dabak-Wakankar, I. El Baggari, L. F. Kourkoutis, and R. Hovden “Moiré Magnification of Charge Density Wave Dislocations using 4D-STEM”, **Microscopy and Microanalysis 29 (S1)**, 260–261 (2023)
23. A. Mireles, C. Shi, J. Park, B. Shin, **S. H. Sung**, C. Ophus, R. Hovden, K. Kang, and Y. Han “Using 4D-STEM to Map 3D Morphologies of 2D Materials”, **Microscopy and Microanalysis 29 (S1)**, 262–263 (2023)
22. **S. H. Sung**, Y. M. Goh, H. Yoo, R. Engelke, H. Xie, Z. Li, A. Ye, P. B. Deotare, A. J. Mannix, J. Park, L. Zhao, P. Kim, and R. Hovden “Universal Torsional Periodic Lattice Distortion in Twisted 2D Materials”, **Materials Research Society** (2022)
21. **S. H. Sung**, Y. M. Goh, N. Agarwal, N. Schnitzer, I. El Baggari, K. Sun, L. F. Kourkoutis, and R. Hovden “Engineering Charge Density Waves using Interleaved Polytype Heterostructures”, **Materials Research Society** (2022)
20. **S. H. Sung**, Y. M. Goh, H. Yoo, R. Engelke, H. Xie, Z. Li, A. Ye, P. B. Deotare, A. J. Mannix, J. Park, L. Zhao, P. Kim, and R. Hovden “Universal Torsional Periodic Lattice Distortion in Twisted 2D Materials”, **Microscopy and Microanalysis 28 (S1)**, 1742–1744 (2022)
19. **S. H. Sung**, Y. M. Goh, N. Agarwal, N. Schnitzer, I. El Baggari, K. Sun, L. F. Kourkoutis, and R. Hovden “Engineering Charge Density Waves using Interleaved Polytype Heterostructures”, **Microscopy and Microanalysis 28 (S1)**, 2362–2364 (2022)
18. Y. M. Goh*, **S. H. Sung***, B. Yang, G. Ye, S. Biswas, D. A. S. Kaib, R. Dhaka, S. Yan, C. Li, S. Jiang, F. Chen, H. Lei, R. Valent, S. M. Winter, R. Hovden, and A. W. Tsen “Pico-scale Distortions in Encapsulated Monolayer α -RuCl₃ Characterized with 3D Electron Diffraction”, **Microscopy and Microanalysis 28 (S1)**, 1982–1985 (2022) [**1st Place Poster Award (Physical Sciences)**]
17. N. Agarwal*, **S. H. Sung***, J. Schwartz, and R. Hovden “Accessing Chemically Ordered Phases in TaS₂ via High Temperature In-situ TEM”, **Microscopy and Microanalysis 28 (S1)**, 1926–1927 (2022) [**M&M Student Scholar Awards**]
16. **S. H. Sung**, Y. M. Goh, H. Yoo, R. Engelke, P. Kim, and R. Hovden “Torsional Periodic Lattice Distortion in Twisted Bilayer Graphene”, **Bulletin of the American Physical Society** **67**, 3, K56.2 (2022)

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14. H. Xie, X. Luo, G. Ye, Z. Ye, H. Ge, **S. H. Sung**, E. Rennich, S. Yan, Y. Fu, S. Tian, H. Lei, R. Hovden, K. Sun, R. He, and L. Zhao “Tuning two-dimensional magnetism in twisted CrI₃ double bilayers”, **Bulletin of the American Physical Society** **67**, 3, Q55.4 (2022)
13. **S. H. Sung**, N. Schnitzer, S. Novakov, I. El Baggari, X. Luo, J. Gim, N. Vu, Z. Li, T. Brintlinger, Y. Liu, W. Lu, Y. P. Sun, P. Deotare, K. Sun, L. Zhao, L. F. Kourkoutis, J. T. Heron, and R. Hovden “Two-dimensional charge order stabilized in clean polytype heterostructures”, **Materials Research Society** (2021)
12. **S. H. Sung**, N. Schnitzer, S. Novakov, I. El Baggari, X. Luo, J. Gim, N. Vu, Z. Li, T. Brintlinger, Y. Liu, W. Lu, Y. P. Sun, P. Deotare, K. Sun, L. Zhao, L. F. Kourkoutis, J. T. Heron, and R. Hovden “Two-dimensional charge order stabilized in clean polytype heterostructures”, **Microscopy and Microanalysis** **27 (S1)**, 896–898 (2021)
11. **S. H. Sung**, Y. M. Goh, I. El Baggari, K. Sun, and R. Hovden “Recovery of long-range order in two-dimensional charge density waves at high temperatures”, **Microscopy and Microanalysis** **27 (S1)**, 852–854 (2021) [**M&M Student Scholar Awards**]
10. R. Engelke, H. Yoo, S. Carr, **S. H. Sung***, K. Zhang, A. M. Valdiva, E. B. Tadmor, R. Hovden, E. Kaxiras, and P. Kim “Imaging of 2-Dimensional Dislocation Networks in Twisted Bilayer Graphene and Beyond”, **Microscopy and Microanalysis** **26 (S2)**, 854–855 (2020)
9. R. Yalisove*, **S. H. Sung***, J. Schwartz, C. Groschner, P. Pelz, H. Zheng, Y. Jiang, C. Ophus, M. Scott, P. Ercius, and R. Hovden “Achieving High-resolution of Large Specimens Using Aberration-corrected Tomography”, **Microscopy and Microanalysis** **26 (S2)**, 1860–1862 (2020)
8. R. Hovden, R. Yalisove, J. Schwartz, **S. H. Sung**, Y. Jiang, and P. Ercius “Achieving High-resolution of Large Specimens Using Aberration-corrected Tomography”, **Microscopy and Microanalysis** **26 (S2)**, 924–925 (2020)
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6. R. Hovden, **S. H. Sung**, N. Schnitzer, S. Novakov, I. El Baggari, B. Savitzky, J. T. Heron, and L. F. Kourkoutis “The Structure of Charge Density Wave Phase Transitions in Atomically Thin Materials”, **Microscopy and Microanalysis** **26 (S2)**, 864–866 (2020)
5. R. Yalisove*, **S. H. Sung***, and R. Hovden “Defining Theoretical Limits of Aberration-Corrected Electron Tomography: New Bounds for Resolution, Object Size, and Dose”, **Microscopy and Microanalysis** **25 (S2)**, 1810–1811 (2019) [**M&M Student Scholar Awards**]
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2. H. Yoo, K. Zhang, R. Engelke, P. Cazeaux, **S. H. Sung**, R. Hovden, A. Tsen, T. Taniguchi, K. Watanabe, G.-C. Yi, M. Kim, M. Luskin, E. Tadmor, and P. Kim “Atomic Scale Relaxation at the van der Waals Interface in Twisted Bilayer Graphene”, **Bulletin of the American Physical Society** **63**, 1, V37.10 (2018)
1. R. Engelke, H. Yoo, K. Zhang, P. Cazeaux, **S. H. Sung**, R. Hovden, A. Tsen, T. Taniguchi, K. Watanabe, G.-C. Yi, M. Kim, M. Luskin, E. Tadmor, and P. Kim “Structural study of atomic relaxation and commensurate transition in twisted bilayer graphene”, **Bulletin of the American Physical Society** **63**, 1, V37.9 (2018)

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PRESENTATIONS

40. **S. H. Sung**, N. Agarwal, I. El Baggari, Y. M. Goh, P. Kezer, N. Schnitzer, Y. Liu, W. Lu, Y. P. Sun, L. F. Kourkoutis, K. Sun, J. T. Heron, and R. Hovden "Endotaxial Polytype Engineering: Enhancement of Incommensurate Charge Density Waves in TaS₂", **Gordon Research Conference: Strongly Correlated Matters** (2024) Mount Holyoke University, MA
39. **S. H. Sung** "Endotaxial stabilization of 2D charge density waves with long-range order", **Invited Talk, Max Planck Institute for Chemical Physics of Solids** (2024) Dresden, Germany
38. **S. H. Sung**, N. Agarwal, I. El Baggari, Y. M. Goh, P. Kezer, N. Schnitzer, Y. Liu, W. Lu, Y. P. Sun, L. F. Kourkoutis, K. Sun, J. T. Heron, and R. Hovden "Endotaxial Polytype Engineering: Enhancement of Incommensurate Charge Density Waves in TaS₂", **Materials Research Society** (2024) Seattle, WA
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36. **S. H. Sung**, N. Agarwal, I. El Baggari, Y. M. Goh, P. Kezer, N. Schnitzer, Y. Liu, W. Lu, Y. P. Sun, L. F. Kourkoutis, K. Sun, J. T. Heron, and R. Hovden "Endotaxial Polytype Engineering: Enhancement of Incommensurate Charge Density Waves in TaS₂", **The 20th International Microscopy Congress** (2023) Busan, South Korea
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33. E. Rennich, **S. H. Sung**, N. Agarwal, R. Hovden, and I. El Baggari "Liquid Helium TEM Sample Holder with High Stability and Long Hold Times", **Microscopy and Microanalysis** (2023) Minneapolis, MN
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26. A. Mireles, C. Shi, J. Park, B. Shin, **S. H. Sung**, C. Ophus, R. Hovden, K. Kang, and Y. Han "Using 4D-STEM to Map 3D Morphologies of 2D Materials", **Microscopy and Microanalysis** (2023) Minneapolis, MN

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23. **S. H. Sung** "Periodic Lattice Distortions in Low Dimensional Materials", **Invited Talk, Harvard University** (2023) Cambridge, MA
22. W. Milsaps*, **S. H. Sung***, N. Schnitzer, L. F. Kourkoutis, and R. Hovden "Ronchigram Simulation and Training through Ronchigram.com", **Microscopy and Microanalysis** (2022) Portland, OR
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17. **S. H. Sung**, Y. M. Goh, N. Agarwal, N. Schnitzer, I. El Baggari, K. Sun, L. F. Kourkoutis, and R. Hovden "Two-dimensional charge order stabilized in clean polytype heterostructures", **PARADIM** (2022) Baltimore, MD [**Invited Presentation**]
16. **S. H. Sung**, Y. M. Goh, H. Yoo, R. Engelke, P. Kim, and R. Hovden "Torsional Periodic Lattice Distortion in Twisted Bilayer Graphene", **APS March Meeting** (2022) Chicago, IL
15. A. Ye, A. J. Mannix, **S. H. Sung**, A. Ray, F. Mujid, C. Park, M. Lee, J.-H. Kang, R. T. Shreiner, A. A. High, D. A. Muller, R. Hovden, and J. Park "Robotically Manufactured Complex van der Waals Heterostructures for Interlayer-Angle-Controlled Combinatorial Solids", **APS March Meeting** (2022) Chicago, IL
14. H. Xie, X. Luo, G. Ye, Z. Ye, H. Ge, **S. H. Sung**, E. Rennich, S. Yan, Y. Fu, S. Tian, H. Lei, R. Hovden, K. Sun, R. He, and L. Zhao "Tuning two-dimensional magnetism in twisted CrI₃ double bilayers", **APS March Meeting** (2022) Chicago, IL
13. **S. H. Sung**, N. Schnitzer, S. Novakov, I. El Baggari, X. Luo, J. Gim, N. Vu, Z. Li, T. Brintlinger, Y. Liu, W. Lu, Y. P. Sun, P. Deotare, K. Sun, L. Zhao, L. F. Kourkoutis, J. T. Heron, and R. Hovden "Two-dimensional charge order stabilized in clean polytype heterostructures", **Materials Research Society** (2021)
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11. **S. H. Sung**, Y. M. Goh, I. El Baggari, K. Sun, and R. Hovden "Recovery of long-range order in two-dimensional charge density waves at high temperatures", **Microscopy and Microanalysis** (2021) Virtual Conference
10. **S. H. Sung**, N. Schnitzer, and R. Hovden "Maximal Resolution from the Ronchigram: Human vs. Deep Learning", **AI for Atoms: How to Machine Learn STEM** (2020) ORNL/CNMS Virtual Workshop

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7. R. Hovden, R. Yalisove, J. Schwartz, **S. H. Sung**, Y. Jiang, and P. Ercius “Filling in the Missing Wedge with Aberration-Corrected Electron Tomography”, **Microscopy and Microanalysis** (2020) Virtual Conference
6. R. Engelke, H. Yoo, S. Carr, **S. H. Sung**, K. Zhang, A. M. Valdivia, E. Tadmor, R. Hovden, K. E., and P. Kim “Imaging of 2Dimensional Dislocation Networks in Twisted Bilayer Graphene and Beyond”, **Microscopy and Microanalysis** (2020) Virtual Conference
5. R. Hovden, **S. H. Sung**, N. Schnitzer, S. Novakov, I. El Baggari, B. H. Savitzky, J. T. Heron, and L. F. Kourkoutis “The Structure of Charge Density Wave Phase Transitions in Atomically Thin Materials”, **Microscopy and Microanalysis** (2020) Virtual Conference
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1. N. Schnitzer*, **S. H. Sung***, and R. Hovden “Stacking, Strain, & Stiffness of 2D Transition Metal Dichalcogenides Quantified through Reciprocal Space”, **Microscopy and Microanalysis** (2018) Baltimore, MD

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AWARDS

Microscopy & Microanalysis 2024 Postdoctoral Scholar Award	Expected July 2024
Best Presentation Award: The 20th International Microscopy Congress	Sept. 2023
Rackham Predoctrnal Fellowship	2022–2023
Rackham Conference Travel Grant	2021, 2022, 2023
Molecular Foundry User Proposal	May 2022
Microscopy & Microanalysis 2021 Student Scholar Award	Aug. 2021
Rackham Graduate Student Research Grant	Jun. 2021
PARADIM User Proposal	Aug. 2018
Dorothy & Fred Chau Award: Excellence in Undergraduate Research	May 2016
Engineering Learning Initiatives Undergraduate Research Award	Apr. 2014 & Sept. 2014

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TEACHING EXPERIENCES, OUTREACH & ACADEMIC SERVICES

- PARADIM Summer School** on Scanning Transmission Electron Microscopy June. 2024
- Designed a tutorial module for PARADIM 2024 Summer school supported under NSF Grant No. DMR-2039380.
- MSE 593 – Design, Data, & Visualization for High Impact Sciences** Fall. 2023
- Co-designed and co-taught with Prof. Robert Hovden at University of Michigan
- PARADIM Summer School** on Scanning Transmission Electron Microscopy June. 2021
- Designed a tutorial module for PARADIM 2021 Summer school supported under NSF Grant No. DMR-2039380.
- Ronchigram.com**: Open-source education tool for advanced Electron Microscopy Jul. 2018 – Current
- Built and maintains 'ronchigram.com', an open-source, cross-platform electron microscopy training tool.
- Peer Review**: Peer Reviewer for *Science* and *Nature Communications*
- Graduate Student Instructor**, University of Michigan Aug. 2019 – Dec. 2019
- Teaching assistant for 'Introduction to Electron Microscopy (MSE 562)'
- Undergraduate Teaching Assistant**, Cornell University Aug. 2015 – Dec. 2015
- Assisted graduate TA for 'Physics I: Mechanics and Heat (PHYS 1112)'
- Private Tutor** Jun. 2012 – Aug. 2017
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