

# Curriculum Vitae for Yeongsu Cho

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**Research Area:** Computational/Theoretical Chemistry, Materials science

## PROFESSIONAL EXPERIENCE

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**Assistant professor** 2024-present  
University of Houston, Department of Chemistry

## EDUCATION

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**MIT, Cambridge, MA** 2021-2024  
Postdoctoral researcher, Advisor: Heather Kulik

**Columbia University, New York, NY, USA** 2019-2021  
Ph.D. Chemistry, Advisor: Timothy Berkelbach

**University of Chicago, Chicago, IL, USA** 2016-2019  
M.S. Chemistry, Advisor: Timothy Berkelbach

**Seoul National University, Seoul, Republic of Korea** 2011-2015  
B.S. Chemistry and Physics, Advisor: Youn Joon Jung

## PUBLICATIONS (First author)

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7. **Cho, Y.**, and Kulik, H. J. (2024). Improving gas adsorption modeling for MOFs by local calibration of Hubbard U parameters. *J. Chem. Phys.*, 160(15).
6. Biffi, G.<sup>†</sup>, **Cho, Y.**<sup>†</sup>, Krahne, R., and Berkelbach, T. (2023). Excitons and their Fine Structure in Lead Halide Perovskite Nanocrystals from Atomistic GW/BSE Calculations. *J. Phys. Chem. C*, 127, 1891-1898.<sup>†</sup>equal contribution
5. **Cho, Y.**, Nandy, A., Duan, C., and Kulik, H. J. (2023). DFT-Based Multireference Diagnostics in the Solid State: Application to Metal-Organic Frameworks. *J. Chem. Theory Comput.*, 190-197.
4. **Cho, Y.**, Bintrim, S. J., and Berkelbach, T. (2022). Simplified GW/BSE Approach for Charged and Neutral Excitation Energies of Large Molecules and Nanomaterials. *J. Chem. Theory Comput.*, 3438-3446.
3. **Cho, Y.**, Greene, S., and Berkelbach, T. (2021). Simulations of trion and biexcitons in layered hybrid organic-inorganic lead halide perovskites. *Phys. Rev. Lett.*, 126, 216402.
2. **Cho, Y.**, and Berkelbach, T. (2019). Optical properties of layered hybrid organic-inorganic halide perovskites: a tight-binding GW-BSE study. *J. Phys. Chem. Lett.*, 10, 6189-6196.
1. **Cho, Y.**, and Berkelbach, T. (2018). Environmentally sensitive theory of electronic and optical transitions in atomically thin semiconductors. *Phys. Rev. B*, 97(4), 041409.

## **PUBLICATIONS (Co-author)**

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10. Khamlue, R., Sakurada, T., **Cho, Y.**, Lee, W., Leangtanom, P., Taylor, M. G., Naewtong, W., Sripetch, P., Ranong, B. N., Autila, T., Rungseesumran, T., Sudyodsuk, T., Kopwitthaya, A., Muller, P., Promarak, V., Kulik, H. J., Tisdale, W. A., and Paritmongkol, W. (2023) Heterocyclic Modification Leading to Luminescent 0D Metal Organochalcogenide with Stable X-ray Scintillating Properties. *Chem. Mater.*
9. Roh, H., Kim, D., **Cho, Y.**, Jo, Y., del Alamo, J. A., Kulik, H. J., Dinca, M., and Gumyusenge, A. (2023) Robust Chemiresistive Behavior in Conductive Polymer/MOF Composites. *Adv. Mater.*, 2312382.
8. Dahl, J. C., Niblett, S., **Cho, Y.**, Wang, X., Zhang, Y., Chan, E. M., and Alivisatos, A. P. (2023) Scientific Machine Learning of 2D Perovskite Nanosheet Formation. *J. Am. Chem. Soc.*, 145, 42, 23076-23087.
7. Ariyaratna, I. R., **Cho, Y.**, Duan, C., and Kulik, H. J. (2023) Gas-Phase and Solid-State Electronic Structure Analysis and DFT Benchmarking of HfCO. *Phys. Chem. Chem. Phys.* 25(39), 26632-26639
6. Sakurada, T., **Cho, Y.**, Paritmongkol, W., Lee, W., Wan, R., Su, A., Shcherbakov-Wu, W., Müller, P., Kulik, H. J., Tisdale, W. A. (2023) 1D Hybrid Semiconductor Silver 2, 6-Difluorophenylselenolate. *J. Am. Chem. Soc.*, 145, 9, 5183-5190.
5. Ziegler, J. D., **Cho, Y.**, Terres, S., Menahem, M., Taniguchi, T., Watanabe, K., Yaffe, O., Berkelbach, T., and Chernikov, A. (2023) Mobile Trions in Electrically Tunable Two-dimensional Hybrid Perovskites. *Adv. Mater.*, 2210221.
4. Lee, W., **Cho, Y.**, Powers, E. R., Paritmongkol, W., Sakurada, T., Kulik, H. J., and Tisdale, W. A. (2022) Light Emission in 2D Silver Phenylchalcogenolates. *ACS Nano*, 20318-20328
3. Wiscons, R. A., **Cho, Y.**, Han, S. Dismukes, A. H., Meirzadeh, E., Nuckolls, C., Berkelbach, T., and Roy, X. (2021). Polytypism, anisotropic transport, and Weyl nodes in the van der Waals metal TaFeTe<sub>4</sub>. *J. Am. Chem. Soc.*, 143, 109-113.
2. Zhou, Q., **Cho, Y.**, Yang, S., Weiss, E., Berkelbach, T., and Darancet, P. (2019). Large band edge tunability in colloidal nanoplatelets. *Nano Lett.*, 19, 7124-7129.
1. Raja, A., Waldecker, L., Zipfel, J., **Cho, Y.**, Brem, S., Ziegler, J., Kulig, M., Taniguchi, T., Watanabe, K., Malic, E., Heinz, T., Berkelbach, T., and Chernikov, A. (2019). Dielectric disorder in two-dimensional materials. *Nat. nanotechnol.*, 14(9), 832-837.

## **GRANTS**

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- ACCESS allocations (computing resources)
  - “Developing Accurate Materials Design Strategies Across Method- and Length- Scales”
  - 5.9M CPU hours for Jul. 2023 – Jun. 2024

## **HONORS AND AWARDS**

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- **Pegram Award** Apr. 2021  
*Chemistry department, Columbia University*
- **Chemical Computing Group Excellence Award for Graduate Students** Apr. 2021  
*American Chemical Society's Division of Computers in Chemistry*
- **Kathy Chen Fellowship** Sep. 2020 - Jun. 2021  
*Chemistry department, Columbia University*
- **Presidential Science Scholarship** 2011 – 2014  
*Korea Student Aid Foundation*