# Sophie F. Weber

**ETH Zürich**
Department of Materials
HIT G 23.4
Wolfgang-Pauli-Str. 27, 8093 Zürich, Switzerland

*Email*: sophie.weber@mat.ethz.ch

## EDUCATION

PhD, University of California, Berkeley, Physics
Advisor: Professor Jeffrey B. Neaton — April 2021

M.A., University of California, Berkeley, Physics — 2018

B.S., Massachusetts Institute of Technology, Physics — 2014

## Professional Experience

Postdoctoral researcher, ETH Zürich, Materials Theory
Advisor: Professor Nicola A. Spaldin — July 2021-present

## Awards and Fellowships

National Defense Science and Engineering Graduate (NDSEG) Fellow (National award) — 2015-2018
Deutscher Akademischer Austauschdienst (DAAD) Research Grant (National award) — 2014-2015
Sigma Pi Sigma Inductee (MIT) — 2014
Phi Beta Kappa Inductee (MIT) — 2014

## PUBLICATIONS

### Published

[1] **Weber, S. F.** and Neaton, J. B., *Origins of anisotropic transport in the electrically switchable antiferromagnet* $Fe_{1/3}NbS_2$, Physical Review B **103**, 214439 (2021)

[2] Haley, S. C., **Weber, S. F.**, Cookmeyer, T., Parker, D. E., Maniv, E., Maksimovic, N., John, C., Doyle, S., Maniv, A., Ramakrishna, S. K., Reyes, A. P., Singleton, J., Moore, J. E., Neaton, J. B., and Analytis, J., *Half-magnetization Plateau and the Origin of Threefold Symmetry Breaking in an Electrically-switchable Triangular Antiferromagnet*, Physical Review Research **2**, 043020 (2020)

[3] Mukherjee, S., Jung, S. W., **Weber, S. F.**, Xu, C., Qian, D., Xu, X., Biswas, P. K., Kim, T. K., Chapon, L. C., Watson, M. D., Neaton, J. B., Cacho, C., *Fermi-crossing Type-II Dirac Fermions and Topological Surface States in* $NiTe_2$, Scientific Reports **10**, 12957 (2020)

[4] **Weber, S. F.**, Griffin, S. M., Neaton, J. B., *Topological Semimetal Features in the Multiferroic Hexagonal Manganites*, Physical Review Materials **3**, 4206 (2019)

[5] Hochberg, Y. Kahn, Y., Listanti, M., Zurek, K. M., Grushin, A. G., Ilan, R., Griffin, S. M., Liu, Z. F., **Weber, S. F.**, Neaton, J. B., *Detection of sub-MeV Dark Matter with Three-Dimensional Dirac Materials*, Physical Review D **97**, 015004 (2018)

[6] **Weber, S. F.**, Chen, R., Yan, Q., Neaton, J. B. 2017. *Predication of* TiRhAs *as a Dirac Nodal Line Semimetal via First-Principles Calculations*, Physical Review B **96**, 235145 (2017)

[7] Samutpraphoot, P., **Weber, S. F.**, Lin, Q., Gangloff, D., Bylinskii, A., Braverman, B., Kawasaki, A., Raab, C., Kaenders, W., Vuletic, V., *Passive Intrinsic-Linewidth Narrowing of Ultraviolet Extended-Cavity Diode Laser by Weak Optical Feedback*, Optics Express **22**, 11592-11599 (2014)

**Submitted**

[1] Wu, S., Zhijun, X., Haley, S. C., **Weber. S. F.**, Acharya, A., Maniv, E., Qiu, Y., Aczel, AA, Neaton, J. B., Analytis, J. G., Birgeneau, R. J., *Highly tunable magnetic phases in transition metal dichalcogenide* $Fe_{1+\delta}NbS_2$, submitted to Physical Review X, arXiv preprint **arXiv:2106:01341** (2021)

## Density Functional Theory and Programming Experience

| | |
|---|---|
| Density Functional Theory (DFT) | VASP, Wannier90, PHONOPY, WannierTools |
| Programming | MATLAB, Python, LaTeX |

## Talks

APS March Meeting (Virtual)
*First-Principles Studies of* Fe*-intercalated* $NbS_2$ 2021
APS March Meeting, Boston, MA
*First-Principles Studies of Topological Semimetal Features*
*in the Nonpolar Phase of Ferromagnetic Hexagonal Manganites* $YX)_3$ *(*$X = V - Co$*)* 2019
NPCQ All-Hands Meeting, Berkeley, CA
*Searching for Coupled Order Parameters in Magnetic Ion-intercalated TMDs* 2019
APS March Meeting, Los Angeles, CA
*Tunable Topological Materials from First Principles* 2018
APS March Meeting, New Orleans, LA
*First-Principles Studies of* TiAsRh*, a New Dirac Nodal Line System* 2017

## Referee experience

| | |
|---|---|
| *Physical Review B* | 2019-present |
| *Physical Review Letters* | 2019-present |