Dr. William E. Kaden Associate Professor of Physics 4111 Libra Drive Room 430 Orlando, FL 32816 William.kaden@ucf.edu

(a) Professional Preparation

SUNY Oswego	Oswego, NY	Chemistry	B.S. 2002
University of Utah	Salt Lake City, UT	Physical Chemistry	Ph.D. 2010
Fritz Haber Institute of the Max Planck Society	Berlin, Germany	Chemical- Physics	Postdoctoral Fellow 2010-2014

(b) Appointments

Associate Professor of Physics	University of Central Florida	2021-present
Assistant Professor of Physics	University of Central Florida	2014-2021
Postdoctoral Research Fellow	Fritz Haber Institute	2010-2014
Graduate Research Assistant	University of Utah	2003-2010
Undergraduate Research Assistant	SUNY Oswego	2002
REU Research Assistant	Princeton University	2002

(c) Publications

- (i) List up to five (5) publications/products that are the **most current** ones related to your field
- A. Khaniya, S. Ezzat, Q. Cumston, K.R. Coffey, and W.E. Kaden, "Ru(0001) and SiO2/Ru(0001): XPS study," *Surface Science Spectra* 27, 024009 (2020). DOI:10.1116/6.0000172
- 2. A. Khaniya, and W.E. Kaden, "Epitaxial Growth of δ-like MoN Films on Ru(0001)," *Topics in Catalysis* **62**, 1035-1043 (2019). DOI:<u>10.1007/s11244-019-01198-7</u>
- 3. B. Dhar, J. Pollock, J. Gloria, and W.E. Kaden, "TPD characterization of Al-OD-Si sites at the interface of bilayer Al_{0.42}Si_{0.58}O₂/Ru(0001) thin-films," *Surface Science* **696**, 121595 (2020). DOI:10.1016/j.susc.2020.121595
- 4. S.S. Ezzat, P.D. Mani, A. Khaniya, W. Kaden, D. Gall, K. Barmak, and K.R. Coffey, "Resistivity and surface scattering of (0001) single crystal ruthenium thin films," *Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films* 37, 031516 (2019). DOI:10.1116/1.5093494
- 5. M. Sajid, W.E. Kaden, and A. Kara, "DFT Investigation of Ammonia Formation via a Langmuir-Hinshelwood Mechanism of Mo-Terminated δ-MoN(0001)," *ACS Omega* **7**, 4277 4285 (2022). DOI:10.1021/acsomega.1c05967
- (ii) List up to five (5) other significant publications/products.
- 1. L. Hu, A. Khaniya, J. Wang, G. Chen, W.E. Kaden, and X. Feng, "Ambient electrochemical ammonia synthesis with high selectivity on Fe/Fe oxide catalyst," *ACS Catalysis* **8**, 9312 9319 (2018). DOI:10.1021/acscatal.8b02585
- 2. K. Barmak, S. Ezzat, R. Gusley, A. Jog, S. Kerdsongpanya, A. Khaniya, E. Milosevic, W.

- Richardson, K. Sentosun, A. Zangiabadi, D. Gall, W.E. Kaden, E.R. Mucciolo, P.K. Schelling, A.C. West, K.R. Coffey, "Epitaxial metals for interconnects beyond Cu," *Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films* **38**, 033406 (2020). DOI:10.1116/6.0000018
- 3. Z. Gao, D. Le, A. Khaniya, C.L. Dezalah, J. Woodruff, R.K. Kanjolia, W.E. Kaden, T.S. Rahman, and P. Banerjee, "Self-Catalyzed, Low-Temperature Atomic Layer Deposition of Ruthenium Metal Using Zero-Valent Ru(DMDB)(CO)₃ and water," *Chemistry of Materials* 31, 1304-1317 (2019). DOI:10.1021/acs.chemmater.8b04456
- 4. W. Kaden, S. Pomp, M. Sterrer, and H.-J. Freund, "Insights into Silica Bilayer Hydroxylation and Dissolution," *Topics in Catalysis* **60**, 471-480 (2017). DOI:10.1007/s11244-016-0715-7
- 5. J. Wang, A. Khaniya, L. Hu, M.J. Beazley, W.E. Kaden, and X. Feng, "A bifunctional catalyst for efficient dehydrogenation and electro-oxidation of hydrazine," *Journal of Materials Chemistry A* **6**, 18050-18056 (2018). DOI:10.1039/C8TA06219F

(d) Graduate teaching experience

• PHZ 6439 Interfacial Physics (Fall 2019).

(e) Graduate students mentored (to completion, if applicable)

• List up to 5 most recent- Chair of thesis/dissertation committees, overall number, names of students, degree, year graduated

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1.	Asim Khaniya	PhD in Physics	2020
2.	Bijoya Dhar	PhD in Physics	2021
3.	Muammad Sajid	PhD in Physics	2022
4.	Deborah Israel	Physics PhD Pre-candidacy	2022-present
5.	Ahmed Hegazy	Physics PhD Pre-Candidacy	2022-present

• List up to 5 most recent- Member of thesis/dissertation committees, overall number, names of students, degree, year graduated

1.	Zackary Parsons	PhD in Physics	2023
2.	Md Afjal Khan Pathan	PhD in Physics	2021
3.	Tyler Campbell	PhD in Physics	2021
4.	Sajeevi Withanage	PhD in Physics	2021
5.	Naseem Ud Din	PhD in Physics	2021

 List total number of graduate students mentored on thesis/dissertation committees over the course of your career.
15

(f) Other synergistic activities related to Graduate Education

Job Placement: All three graduate students completing PhDs in my group have gone on to be hired in research positions at Intel. Two were initially placed into postdoctoral research positions at national laboratories before opting to switch to industry.

Student Recruitment: A pilot undergraduate research program led by me (PREP) successfully resulted in the subsequent admission of a past participant into our graduate program in Physics. **Professional Development:** I have been integral to the organization of several locally hosted conferences, workshops, and symposia providing low-barrier opportunities for professional networking and growth within our graduate student populations.