

Curriculum Vitae

Ho-Chun Lin

Department of Electrical and Computer Engineering (ECE), University of Southern California (USC)
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EDUCATION

- **University of Southern California, Los Angeles, California, United States** *Aug./2019 - Present*
 - Doctor of Science in Electrical Engineering
 - **Advisor** : [Dr. Chia Wei \(Wade\) Hsu](#)
 - **GPA** : 3.82/ 4.0 (overall/scale) with 38 total credits
- **National Taiwan University, Taipei, Taiwan** *Sept./2015 - Jun./2017*
 - Master of Science in Physics
- **National Chiao Tung University, Hsinchu, Taiwan** *Sept./2011 - Jun./2015*
 - Bachelor of Science in Electrophysics

GRADUATE-LEVEL COURSES

Probability for Electrical and Computer Engineers, Optics, Engineering Quantum Mechanics, Advanced Electromagnetic Theory, Nonlinear Optics, Special Topics: Solid State Physics of Low Dimensional Systems, Numerical Techniques for Modeling and Optimization of Nanophotonic and Radio-Frequency Devices, Database Systems
(8 graduate-level courses)

RESEARCH EXPERIENCE

- **Hsu Group ([link](#)), ECE, USC** *Aug./2019 - present*
 - Advisor** : [Dr. Chia Wei \(Wade\) Hsu](#) (cwhsu@usc.edu)
 - Project I : Scattering matrix for complex optical systems
 - Implementing a multi-response solver for two-dimensional Maxwell's equations with finite difference.
 - Reformulating the computational problem and developing algorithms to compute only the needed information in scattering problems.
 - Benchmark tests of the proposed and existing methods for solving the scattering matrix.
 - Implementing different types of perfectly matched layer to deal with outgoing boundary.
 - Performing multithreading and multiprocessing in the codes.
 - Performing and optimizing the parabolic metasurface.
 - Extending the two-dimensional scattering problem into three-dimensional formalism.
 - Project II : Reflectionless discrete perfectly matched layer
 - Supervising undergraduate student Zhuoyang Yu in his undergraduate project.
 - Implementing multiple discrete perfectly matched layers in the scattering matrix calculations.
 - Optimizing a couple terms to pursue high performance in multiple discrete perfectly matched layer.

POSTER PRESENTATION

- **10th Ming Hsieh ECE Department's Annual Research Festival** *Nov./2019*
 - **Topic** : Efficient single-shot computation of the entire scattering matrix for complex optical systems

HONORS AND AWARDS

- **USC Taiwan Global Fellowship** *Aug./2019*
 - Awarded to the promising PhD students in academic research
- **Dean's Award** *Jun./2017*
 - Awarded to the top 10 % graduate students outstanding in academic research
- **Presidential Award (4 times)** *Sept./2011 - Jun./2015*
 - Awarded to the top 5% of the students in terms of final GPA for that semester
- **Chau-Ting Chang Summer Research Scholarship** *Aug./2014*
 - Awarded to the top 10 % of summer-research students outstanding in academic presentation
- **Hsiao-Yuan Li Scholarship** *Oct./2013*
 - Awarded to top 5 % of outstanding students in the Electrodynamics course

PUBLICATIONS

- [1] Yung-Chang Lin, Chao-Hui Yeh, **Ho-Chun Lin**, Ming-Deng Siao, Zheng Liu, Hideaki Nakajima, Toshiya Okazaki, Mei-Yin Chou, Kazu Suenaga, and Po-Wen Chiu, *Stable 1T tungsten disulfide monolayer and its junctions : growth and atomic structures*, ACS Nano, **12**, 12080 (2018).
- [2] Chao-Hui Yeh, Hsiang-Chieh Chen, **Ho-Chun Lin**, Yung-Chang Lin, Mei-Yin Chou, Zheng-Yong Liang, Kazu Suenaga, and Po-Wen Chiu, *Ultrafast monolayer WS₂ hybrid phototransistors with high gain*, ACS Nano, **13**, 3269 (2019).
- [3] Chun-Hao Chu, **Ho-Chun Lin**, Chao-Hui Yeh, Zheng-Yong Liang, Mei-Yin Chou, and Po-Wen Chiu, *End-bonded Metal Contacts on WSe₂ Field-Effect Transistors*, ACS Nano, **13**, 8146 (2019).
- [4] **Ho-Chun Lin**, Zeyu Wang, and Chia Wei Hsu, *Fast Scattering Matrix Computation for Complex Media and Metasurfaces*, Frontiers in Optics, 2021 (Accepted)

MENTORING

- **Undergraduate student Zhuoyang Yu** *July/2020 - present*
 - Senior research project in USC-Tsinghua Program
- **High school student Jiahaun (Henry) Zheng** *June/2021 - July/2021*
 - Summer research project in 2021 SHINE Program