

# Wenhao Yuan

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## EDUCATION

<b>MEng in Materials Science and Engineering</b> (Expected to graduate in May 2024)	<b>2023/08-present</b>
Department of Materials Science and Engineering, National University of Singapore, Singapore	
<b>Visiting Student</b> (GPA: 4.5/5.0)	<b>2022/08-2023/07</b>
3+2 Joint Educational Framework, National University of Singapore, Singapore	
<b>BEng in Material Physics</b> (GPA: 3.7/4.0)	<b>2019/08-2023/07</b>
School of Materials Science and Engineering, Hebei University of Technology, P.R. China	

## RESEARCH EXPERIENCE

<b>Deep Learning STEM</b> (Master work)	<b>2022/08-present</b>
Nanoparticles segmentation of STEM images by Deep Learning. Supervised by Asst. Prof. Dr. Qian He ( <a href="#">Google Scholar</a> , <a href="#">ORCID</a> )	
<b>Electrocatalysis</b> (Undergraduate work)	<b>2021/03-2022/07</b>
Design of electrocatalyst for OER, ORR, and HER. Supervised by Prof. Dr. Hui Liu ( <a href="#">Google Scholar</a> , <a href="#">ORCID</a> )	

## PUBLICATIONS

- **Yuan, W.**; Li, Y.; Liang, L.; Wang, F.\*; Liu, H.\* Dual-Anion Doping Enables NiSe<sub>2</sub> Electrocatalysts to Accelerate Alkaline Hydrogen Evolution Reaction. **ACS Appl. Energy Mater.** **2022**, 5 (4), 5036-5043. ([Link](#))
- Wang, F., Zhang, R., Zhang, Y., Li, Y., Zhang, J., **Yuan, W.**, Liu, H.\*, Wang, F.\*, Xin, H. L.\*, Modulating Electronic Structure of Atomically Dispersed Nickel Sites through Boron and Nitrogen Dual Coordination Boosts Oxygen Reduction. **Adv. Funct. Mater.** **2023**, 2213863. ([Link](#))
- Wang, F.; Zhang, Y.; **Yuan, W.**; Mao, J.; Wang, K.; Li, Y.; Chen, C.; Liang, L.\*; Liu, C.\* Plasma Etching of Pyrite-type Nickel Diselenide Nanosheets to Create Selenium Vacancies for Applications as Electrocatalysts for Hydrogen Evolution. **ACS Appl. Nano Mater.** **2023**, 6 (5), 3848–3855. ([Link](#))
- Wang, F.; **Yuan, W.**; Liang, L.; Li, Y.; Hao, Q.; Chen, C.; Liu, C.\*; Liu, H.\* Engineering Ni(OH)<sub>x</sub>/(Ni, Cu)Se<sub>2</sub> heterostructure nanosheet arrays for highly-efficient water oxidation. **J. Alloys Compd.** **2023**, 933, 167730. ([Link](#))
- Wang, F.; Zhang, Y.; Zhang, J.; **Yuan, W.**; Li, Y.; Mao, J.; Liu, C.; Chen, C.; Liu, H.\*; Zheng, S.\* In Situ Electrochemically Formed Ag/NiOOH/Ni<sub>3</sub>S<sub>2</sub> Heterostructure Electrocatalysts with Exceptional Performance toward Oxygen Evolution Reaction. **ACS Sustain. Chem. Eng.** **2022**, 10 (18), 5976-5985. ([Link](#))
- Chen, G.\*; Du, Q.; Zhang, H.\*; Niu, R.; **Yuan, W.**; Xie, X.; Guo, T.\*; Liu, G. Cu-related defects and optical properties in copper–indium–selenide quantum dots by a green synthesis. **J. Appl. Phys.** **2022**, 131, 145704. ([Link](#))

## SKILLS

- Machine learning using PyTorch, with a focus on OpenCV and UNet++ of deep learning.
- Characterization of in situ electrochemical Raman spectroscopy.
- DFT-based first principle calculation using VASP.
- Fine structure analysis of XAS using Athena and Artemis.
- Modeling on multi-objective optimization, specialize in ARIMA, GRA and K-means.