Wu Haodong

+86 130-8669-1075 | 2357585w@student.gla.ac.uk
NO.2006 Xiyuan Ave, West Hi-tech Zone, Chengdu, Sichuan 611731 P.R.China

EDUCATION EXPERIENCE

Glasgow College, University of Electronic Science and Technology of China Sep 2017 - Jun 2022
Undergraduate (Contain a gap year from 2019.6 to 2020.9 because of ophthalmic diseases) Chengdu/China
Honors/Awards: Module Student Award (2018)
Main Coursework: Calculus (93), Linear Algebra and Space Analytic Geometry (86), Physical Experiment (84), Design and implementation of interdisciplinary integrated application system (86), The Summary of Chinese Modern History (83).

College of Science and Engineering, University of Glasgow Sep 2017 - Jun 2022
Undergraduate (Contain a gap year from 2019.6 to 2020.9 because of ophthalmic diseases) Glasgow/UK
Honors/Awards: Leadership Excellence Scholarship (2018)
Main Coursework: Introductory Programming (89), Team Design Project (89), Power Electronics (86), Dynamics and Control (79), Circuit Analysis and Design (76), Microelectronic Systems (89), Electronic System Design (79).

COMSOL Inc. Mar 2019 - Apr 2019
Student Online
Instructor: Dr. Guang Chen, Dr. Lei Cao
Main Training Programs: Meshing Intricate Geometry, Performing Complex Analyses, Linear and Non-Linear Finite Element Methods, Selecting the Optimal Solver, Post-Processing with Result Data and Plots, Structural Mechanics, Damping and Losses, Electromechanics, Piezoelectric Devices, MEMS Devices.

Summer School, University of Glasgow Jun 2018 - Sep 2018
Undergraduate Glasgow/UK
Instructor: Dr. Nathalie Sheridan
Main Coursework: Introduction to Solid State Lighting, Visible Spectrum and Eye Response, History of Lighting, Effects on Temperature on LEDs, Efficiency of White LEDs.

RESEARCH EXPERIENCE

FYP-Final Year Project, University of Glasgow Jul 2021 - May 2022
Undergraduate Chengdu/China

- Collaborated with Dr. Lianping Hou propose a system to detect gas leakage scenarios and provide a security alert to intended users.
- We will build the system using a gas detection sensor and interface it with 8051 family microcontrollers along with GSM modem for alerting via a Short Messaging Service.

Engineering Laboratory of Hydrogen Electric and Sustainable System, University of Electronic Science and Technology of China Jan 2020 - Jan 2021
Research Assistant Chengdu/China

Laboratory Equipment Management

- Assessed maintenance needs of laboratory equipment and perform minor repairs or schedule major repairs with vendors.
- Responsible for laboratory procurement, technical evaluation of cooperative projects, and technical training for new lab members.

Academic Experience

Under the overall direction of Dr. Tianyong Luo, I carried out a series of experiments in the field of condensed matter physics, specifically:

- The hydride ion was first discovered in the single crystal titanium dioxide, and discusses its key role in Photocatalytic decomposition of water played.
- Explored the behavior of hydrogen in lithium metal aluminate and studied the conduction mechanism of hydrogen

in perovskite doped materials and challenged the conventional viewpoint.

Creative Machine Lab, Columbia University Jul 2019 - Sep 2019

Project team number Online

Under the overall direction of Dr. Joni Mici, I carried out product design and iteration around micro electro mechanical system, specifically:

- Work with team members to design a new generation of smart building blocks, and also conduct product trials and market analysis on the designed blocks.

Joint International Laboratory of Energy and Sustainable Engineering, University of Electronic Science and Technology of China Jan 2019 - Dec 2019

Research Assistant/Undergraduate Laboratory Assistant Chengdu/China

Laboratory Equipment Management

- Supervised multiple daily laboratory operations to ensure that all safety regulations and requirements were always fully followed. Maintained a clean and organized work environment, managed records of each experiment, and worked on the improvement of existing research protocols.
- Coordinated and supervised multiple Interns, worked closely and communicated with various science professionals, and performed other duties as required.

Academic Experience

Under the overall direction of Dr. Enrico Traversa, I performed manufacturing process improvement and long-term performance testing on $BaZrO_3$-based high temperature proton conductor, specifically:

- Collaborated with Dr. Bin Lin, toward exploring the world's first depositing electrochemical hydrogen pump based on Y-doped $BaZrO_3$ (BZY) backbones effection and revise approaches in the course of research ensure successful and timely completion of projects.
- Collaborated with three master graduate researchers toward developing reside in a micro-flow gas separation apparatus, particularly relates to the technical field of vacuum leak deuterium, helium gas mixture separation apparatus fusion device.

INTERNSHIP EXPERIENCE

Solid State Ionics Lab, Westlake University Jul 2021 - Aug 2021

Visiting Student Hangzhou/China

Supervisor: Dr. Qiyang Lu

- Participated in most studies around the process of redox exsolution, and realized quantitative analysis of experimental results based on programming with Matlab.
- Responsible for the processing and manufacturing of $BaZrO_3$-based high temperature proton conductor material and assist in the improvement of the production process and quality system.
- Participated in process optimization and feedback of new in situ characterization method, and make suggestions.

Anhui Province Key Laboratory of Low Temperature Co-fired Materials Aug 2020 - Sep 2020

Visiting Student Huainan/China

Supervisor: Dr. Dong Tian

- Committed to the development of high-performance solid oxide fuel cell cathode catalytic materials based on high-entropy ceramic.

Ningbo KONIT&NIHON Magnetic Materials Inc Jul 2020 - Aug 2020

Technical Designer Ningbo/China

Supervisor: Mr. Hao Huang

- Responsible for the identification and evaluation of new product quality requirements of new magnetic materials application R&D team.
- Evaluated capability boundary and find process risk, timely feedback quality problems in production, and make suggestions.

LEADERSHIP EXPERIENCE

UESTC Glasgow College Students Union Jun 2018 - May 2019
Executive Director Chengdu/China
UESTC Glasgow College Media Center Jun 2018 - May 2019
Senior Editor Chengdu/China

- Responsible for the operation of new media in the University, operate WeChat official account and official micro-blog, edit, publish, maintain and manage the daily edition, compile and distribute micro-blog content, interact effectively with fans, increase influence and attention.
- Participated in the planning of marketing activities held by new media in festivals and assist in the implementation of the activities.

TEAMWORK

TDPS 2020-2021 (Group 9) Mar 2021 - Jun 2021
Team Size: 10 Chengdu/China

- Complete the design and manufacture of the robot power supply system.
- Supervise and assist other members in the sub-group to complete the design and processing of the robot hardware part.

PUBLICATIONS

†: These authors contributed equally to the work and should be considered as co-first authors of the article

[1] Quan Yang, Guoqing Wang, **Haodong Wu**, Bayu Admasu Beshiworka, et al. A high-entropy perovskite cathode for solid oxide fuel cells[J]. *Journal of Alloys and Compounds*, 872, 159633.

[2] Quan Yang, Dong Tian, Rui Liu, **Haodong Wu**, et al. Exploiting rare-earth-abundant layered perovskite cathodes of $LnBa_{0.5}Sr_{0.5}Co_{1.5}Fe_{0.5}O_{5+\delta}$ (Ln=La and Nd) for SOFCs[J]. *International Journal of Hydrogen Energy*, 46(7), 5630-5641.

[3] Wei Wang, Xiaozhen Zhang, Kashif Khan, **Haodong Wu**, et al. Enhanced ORR activity of A-site deficiency engineered $BaCo_{0.4}Fe_{0.4}Zr_{0.1}Y_{0.1}O_{3-\delta}$ cathode in practical YSZ fuel cells[J]. *International Journal of Hydrogen Energy*, 46(7), 5593-5603.

[4] Xiao-Xi Chen†, **Hao-Dong Wu†**, Guo-Qing Wang, Tian-Yong Luo, et al. A new mechanism of photocatalytic hydrogen molecule generation induced by a negative state of H in TiO_2[J]. *International Journal of Hydrogen Energy*, HE-D-21-01854. [Editorial decision]

[5] **Hao-Dong Wu**, Zi-Qiang Li, Xiao-Xi Chen, Kashif Khan, et al. Exploring the Use of Electrochemical Hydrogen Pump in Tritium Extraction System and Coolant Purification System[J]. *Fusion Engineering and Design*, FUSENGDES-D-20-01035R1. [Editorial decision]

[6] Quan Yang, **Haodong Wu**, Kai Song, Bayu Admasu Beshiwork, et al. Preparation and investigation of Ce-doped $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_{3-\delta}$ cathode with enhanced stability and activity for ceramic fuel cells[J]. *Journal of the European Ceramic Society*. JECESOC-D-21-01251. [With Editor]

[7] **Haodong Wu**, Ziqiang Li, Xiaoxi Chen, Kashif Khan, et al. Potential Application of Electrochemical Hydrogen Pumpin Tritium Extraction System and Coolant Purification System[J]. *MethodsX*, FUSENGDES-D-20-01035R1. [Editorial decision]

[8] Yingqing Liao†, **Haodong Wu†**, Nian Ran, Jianjun Liu, et al. The possible negative state of deuterium in $LiAlO_2$ irradiated by 3keV D^{2+} at higher temperature[J]. *Journal of Nuclear Materials*, JNUMA-D-21-00758. [With Editor]

[9] **Haodong Wu**, Bin Lin*. 新能源材料信息学[J]. *Journal of Ceramics*. [Editorial decision]

PATENTS

[1] Luo Tianyong, **Wu Haodong**, Huang Hao, Liao Yingqing. 一种用于烧结钕铁硼甩带片外观检查的智能监测系统:中国, 202022192048.0[P]. 2020-09-29.

[2] Luo Tianyong, **Wu Haodong**, Huang Hao, Liao Yingqing. 一种用于烧结钕铁硼制备的真空熔炼炉加料装置: 中国, 202022045236.0[P]. 2020-09-17.

[3] Luo Tianyong, **Wu Haodong**, Huang Hao, Liao Yingqing. 一种用于烧结钕铁硼毛坯体的真空镀膜系统: 中国, 202022090730.9[P]. 2020-09-22.

[4] Luo Tianyong, **Wu Haodong**, Huang Hao, Liao Yingqing. 一种用于烧结钕铁硼磁粉的筛分装置: 中国, 202022093466.4[P]. 2020-09-22.

[5] Lin Bin, Luo Tianyong, Liu Shiyuan, **Wu Haodong**, et al. Hydrogen isotope extraction assembly for hydrogen-containing mixed gas under high-temperature conditions: 中国, 201910919469.8[P]. 2019-09-26.

[6] Luo Tianyong, **Wu Haodong**, Huang Hao, Liao Yingqing. 一种烧结钕铁硼生产用破碎及冷却系统: 中国, 202022014028.4[P]. 2020-09-15.

AWARDS

[1] Outstanding Volunteer Award, 2018, Chengdu. PATW, Institution of Engineering and Technology; the British Consulate-General Chongqing.

[2] International Exchange Excellence Award, 2019, Chengdu. University of Electronic Science and Technology of China.

[3] Outstanding Volunteer Award, 2018, Chengdu. University of Electronic Science and Technology of China.

SKILLS

- Proficiency in using commercial software to perform 3D modeling and multiphysics finite element analysis of industrial products.
- Able to design and process printed circuit boards that reach the specified index and realize the specific function.
- Well versed in almost all manufacturing and testing technology on solid electrolyte/solid oxide cell.
- Familiarity with the design and realization of control systems in different potential usage scenarios.

SOFTWARE

C/C++ language (Course Certification), Matlab (Course Certification), COMSOL Multiphysics (Course Certification), Latex (Course Certification), Python (Data Processing), MySQL, Adobe Photoshop/ Illustrator, Origin, Solidworks, Autodesk CAD/3D Studio Max /Maya

INSTRUMENTATION

Electrical measuring related: Oscilloscope/Signal Generator/Frequency Spectrograph (Course Certification); Sourcemeter (KEITHLEY 2400); Electrochemical Workstation (ZAHNER ZENNIUM PRO, BIO-LOGIC VMP3, ADMIRAL SQUIDSTAT PLUS);
Material characterization related: Powder/High-resolution Thin-Film X-ray diffractometer (BRUKER; Course Certification); Gas Chromatography (Course Certification); Scanning electron microscope (ZEISS GEMINI450).

LANGUAGES

Native in Mandarin; Conversational Proficiency in English

INTERESTS

Swimming, Collection (traveled and collected rocks over 30+ cities)