

Sheng-Heng Chung, Ph.D.

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- **Assistant Professor:** Department of Materials Science and Engineering - National Cheng Kung University (2019 – Present)
- **Adjunct Researcher:** Hierarchical Green-Energy Materials Research Center - National Cheng Kung University (2019 – Present)
- **Research Area:** Electrochemical conversion/storage technologies, Batteries, Supercapacitors, Fuel cells (Citations: 7929; h-index: 35)
- **Research Projects:**
 1. Yushan Scholar Program - Ministry of Education (2019 – Present)
 2. Young Scholar Fellowship Program - Ministry of Science and Technology (2019 – Present)
 3. Industry-University Cooperative Research Project - Ministry of Science and Technology (2020 – Present)
 4. Taiwan-Germany Joint Research Project II - Ministry of Science and Technology (2020 – Present)

EDUCATION

- **Ph.D. in Material Science and Engineering:** The University of Texas at Austin, USA (2015)
- **M.S. in Material Science and Engineering:** National Tsing Hua University, TAIWAN (2008)
- **B.S. in Resource Engineering:** National Tsing Hua University, TAIWAN (2006)
- **B.S. in Materials Science and Engineering:** National Tsing Hua University, TAIWAN (2006)

RESEARCH APPOINTMENTS

- **Research Associate:** Directing DOE research project on composite material design, synthesis, characterization, and application for batteries, Texas Materials Institute (2017 – 2019)
- **Postdoc Researcher:** Conducting DOE research project on battery material, The University of Texas at Austin (2015 – 2016)
- **Graduate Research Assistant:** The University of Texas at Austin (2011 – 2015)
- **Research Engineer:** Safety and Health Technology Center, Taiwan (2010 – 2011)
- **(Second) Lieutenant:** Combined Logistics Command, Taiwan (2008 – 2009)
- **Graduate Research Assistant:** Industrial Technology Research Institute (IRTI), Taiwan (2007 – 2008)
- **Lab Manager:** National Tsing Hua University, Taiwan (2006 – 2008)
- **Undergraduate Research Assistant:** National Cheng Kung University, Taiwan (2004 – 2006)

AWARDS

- Young Scholar Fellowship Program, Ministry of Science and Technology (2019)
- Yushan Young Scholar, Ministry of Education, Taiwan (2019)
- Excellence in Teaching Award (教學特優教師), Dept. Mater. Sci. Eng., National Cheng Kung University, Taiwan (2019)
- Top 1% Reviewers in Cross-Field, Publons (2019)
- Top 1% Reviewers for Materials Science, Publons (2018, 2019)
- Top 1% Reviewers for Chemistry, Publons (2018, 2019)

TEACHING EXPERIENCE

- Materials for Energy Applications, National Cheng Kung University (2019 –)
- Structures and Defects of Crystalline Solids, National Cheng Kung University (2020 –)
- Advanced Materials and Devices for Energy, National Cheng Kung University (2020 –)

PROFESSIONAL EXPERIENCE

Editor

- **Editorial Boards:** *Molecules*, *Polymers* (2019 – Present)
- **Academic Editor:** Environmental Sciences Editorial Board in the *PeerJ* (2017 – Present)
- **Lead Guest Editor:** Special issue “Nanomaterials for Electrochemical Conversion Metal-Sulfur Batteries” in *Journal of Nanomaterials* (2019 – 2020)
- **Guest Editor:** Special issue “Next-Generation Materials for Energy Storage and Conversion” in *Materials* (2019 – 2020)
- **Guest Editor:** Special issue “Lithium-sulfur Batteries” in *Batteries* (2018 – 2019)
- **Lead Guest Editor:** Special issue “Nanomaterial for Electrochemical Conversion-to-Storage Energy Devices” in *Journal of Nanomaterials* (2018 – 2019)
- **Lead Guest Editor:** Special issue “Nanotechnology for Energy Conversion and Storage Materials” in *Journal of Nanomaterials* (2017 – 2018)
- **Lead Guest Editor:** Special issue “Nanomaterials for Next-Generation Rechargeable Batteries” in *Journal of Nanomaterials* (2016 – 2017)

Reviewer

- Review 711 research and review articles from 67 prestigious journals
- **Reviewer Boards:** *Materials*, *Nanomaterials*, and *Polymers*

PROFESSIONAL SKILLS

Technical Skills

- **Lithium-ion battery materials:** 1.) electrochemical batteries, 2.) electrodes, 3.) electrolytes, 4.) composite energy materials
- **Nanomaterials:** 1.) carbon materials, 2.) porosity analysis, 3.) synthesis nanotechnology
- **Functional ceramics:** 1.) solid state fuel cell, 2.) microwave dielectric ceramics
- **Device fabrication:** 1.) electrode preparation method, 2.) fabrication process scale-up, 3.) pouch cell, 4.) full cell, 5.) cell / battery testing and data analysis.
- **Materials synthesis:** 1.) sol-gel, 2.) co-precipitation, 3.) microwave, 4.) hydrothermal synthesis, 5.) solid-state reaction, 6.) phase inversion, 7.) high energy milling

Analytical Skill:

- **Cell analysis:** EIS, CV, electrochemical analysis, self-discharge calculation/analysis, dielectric analysis, electric analysis, diffusion inspection, data analysis
- **Porosity analysis:** BET, pore size, pore model, particle-size analysis
- **Microstructural analysis:** SEM, EDS, STEM, TEM, Raman
- **Thermal analysis:** TGA, TMA, DSC
- **Laboratory experience:** safety, facility management & services, editing & proofreading

Independent R&D projects:

- Yushan Young Scholar (Ministry of Education, TAIWAN)
- Young Scholar Fellowship Program (Ministry of Science and Technology, TAIWAN)
- Statically and Dynamically Stable Lithium-sulfur Batteries (US DOE)
- Materials and Interfacial Chemistry for Next-Generation Electrical Energy Storage (US DOE)
- Lithium-sulfur Batteries (Exxon Mobile EM10480.6)

Cooperative R&D projects:

- Industry-University Cooperative Research Project (Ministry of Science and Technology, TAIWAN)
- Taiwan-Germany Joint Research Project II (Ministry of Science and Technology, TAIWAN)