

CURRICULUM VITAE OF HONG HUANG

Assistant Professor
Department of Mechanical and Materials Engineering
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Employment History

Assistant Professor (2007, 9 – present)

Department of Mechanical and Materials Engineering, Wright State University, OH 45435, USA

Developing and analysing nano-structured materials for electrochemical energy conversion/storage systems including fuel cells, batteries, and supercapacitors.

Research Associate (2003, 3 – 2007, 8)

Rapid Prototyping Laboratory, Department of Mechanical Engineering, Stanford University, CA 94305, USA

Developing nano-structured electrocatalysts and electrolytes for low-temperature solid oxide fuel cells; Demonstrating prototype ultrathin solid oxide fuel cell; Establishing novel methodologies and investigating distinctive properties in nano-structured materials.

Postdoctoral Research Fellow (1999, 12 – 2003, 2)

Laboratory for Inorganic Chemistry, Delft University of Technology, Delft 2628BL, The Netherlands

Developing novel nano-structured materials and exploring possible applications in energy conversion and storage systems including lithium-ion batteries, fuel cells, and hydrogen storage.

Research Associate (1994, 7 – 1997, 6) Research Assistant (1992, 7 – 1994, 6)

Nanoscale Physics and Devices Laboratory, Institute of Physics, Chinese Academy of Sciences, Beijing 100080, China

Investigating lithium intercalation mechanism into carbon-based materials. Understanding interactions among components in polymeric composite electrolyte in lithium-ion batteries. Prototyping lithium-ion batteries on laboratory-scale pilot line.

Education

Doctor of Philosophy (1996-1999), Supervisor: Prof. Dr. Joop Schoonman

Laboratory for Inorganic Chemistry, Delft University of Technology, Delft 2628BL, The Netherlands

Dissertation: Nano-structured Anode Materials for Lithium-ion Batteries

Master of Science (1989-1992), Supervisor: Prof. Dr. Liqun Chen

Nanoscale Physics and Devices Laboratory, Institute of Physics, Chinese Academy of Sciences, Beijing 100080, China

Dissertation: PAN (Polyacrylonitrile)-based Li-salt Composites as Polymer Electrolyte for Lithium Battery

Bachelor of Science (1985-1989), Supervisor: Prof. Fengyu Guo

Laboratory for Inorganic Chemistry, Department of Chemistry, Beijing (Peking) University, Beijing 100871, China

Dissertation: Surface Modification on Luminescent Materials

Teaching Activities

Winter 2008, ME 890, “Advanced Energy Materials”, 6 graduate students

Fall 2007, ME 315, “Thermodynamics I”, 40 undergraduate students

Fall 2005, ME 420, “Applied Electrochemistry - from Micro to Nano-scale”, 15 students, co-lecturer, at the Department of Mechanical Engineering at Stanford University.

Assist to advise and supervise MSc and PhD students within fuel cell – related projects (Kai Fan, Masajuki Nakamura, Cheng-Chieh Chao, Xu Tian, et al) at Rapid Prototyping Laboratory, Department of Mechanical Engineering, Stanford University

Invited Lectures to Graduate Student Seminar:

- 1) Ultra Thin Solid Oxide Fuel Cells For Low Temperature Operation
Max-Planck Institute for Solid State Research, Stuttgart, Germany, June 2006
- 2) Ionic Conducting Characteristics in Nanocrystalline Gadolinia-doped Ceria Films
Delft University of Technology, Delft, The Netherlands, July 2005
- 3) Structure and Electrochemistry of Nano-Sn_{1-x}Si_xO₂ Upon Lithium Intercalation
Institute of Physics, Chinese Academy of Science, Beijing, China, January 2001

Scholar and Professional Activities

a) Scholarship, Awards, and Research Funding

1999 - National Science and Technology Awards: Second Prize, Chinese Ministry of Science and Technology

1997 – WOTRO Research Fellowship, Dutch Organization for Scientific Research

1996 - Sciences & Technology Awards to Excellent Youths, Chinese Ceramic Society

1992 - President Prize to Excellent Youths in Science and Research, Chinese Academy of Sciences

2000, WOTRO Research Grants, Dutch Organization for Scientific Research

2006, Coordinator for Honda Fuel Cell Research Grant,

b) Publications and presentations (over 60 scientific papers/abstracts)

Authored and co-authored 10 patents and over 60 scientific papers/abstracts. A selected and full publication lists are attached. Total citation rate is over 300. Ten of the most recent publications are listed below.

1. **H.Huang**, E.M.Kelder, and J.Schoonman, “Preparation and Electrochemical Characteristics of Lithium Titanium Oxide Spinel Li₄Ti₅O₁₂” Electrochemical Society 198th Meetings, Phoenix, AZ, USA, October 2000.
2. **H.Huang**, E.M.Kelder, and J.Schoonman, “Electrochemical Impedance Spectroscopy Analyses on the Processes of Lithium Intercalation into Li₄Ti₅O₁₂” Electrochemical

Society 198th Meetings, Phoenix, AZ, USA, October 2000.

3. D.R.Simon, **H.Huang**, E.M.Kelder, and J.Schoonman, "Novel Syntheses of Lithium Titanium Oxide Spinel $\text{Li}_4\text{Ti}_5\text{O}_{12}$." Electrochemical Society 198th Meetings, Phoenix, AZ, USA, October 2000.
4. **H.Huang**, E.M.Kelder, L.Chen, and J.Schoonman, "Preparation and Performance of Graphite-Copper Composite," 1999 Joint Meeting of The Electrochemical Society, Honolulu, USA, October 1999.
5. **H.Huang**, L.Chen, R.Xue, B.Huang, H.Yan, Z.Lu, W.Liu, and X.Huang, "Studies on the Key Factors in Rechargeable Lithium-ion Battery," 8th International Meetings on Lithium Batteries, Nagoya, Japan, June 1996.
6. **H.Huang**, R.Xue, H.Yan, G.Li, B.Huang, and L.Chen, "Studies on the Materials of Secondary Lithium-Ion Battery," 46th Annual Meeting of International Society of Electrochemistry, China, August 1995.
7. **H.Huang**, H.Yan, Z.Lu, R.Xue, and L.Chen, "Studies on the Preparation Techniques of LiCoO_2 ," 7th National Electrochemistry Conference, Xiamen, China, August 1995.
8. R.Xue, **H.Huang**, X.Huang, and L.Chen, "IS Study on Lithium Ion Battery During Cycle" 10th International Conference on Solid State Ionics, Singapore, December 1995.
9. H.Yan, Z.Lu, **H.Huang**, B.Huang, G.Li, R.Xue, and L.Chen, "Study on the LiCoO_2 Cathode Prepared by Microwave," 8th National Electrochemistry Conference, Xiamen, China, August 1995.
10. **H.Huang**, X.Huang, R.Xue and L.Chen, "PAN-Based Polymer Electrolyte and Its Applications in Lithium Batteries," 3rd Asian Conference on Solid State Ionics, India, October 1992.

c) Professional Membership and Service as Reviewer

The Electrochemical Society; American Ceramics Society; International Society of Solid State Ionics; Journal of Power Sources.

d) Patents (total of 10 patents)

1. C.Chao, T.Holme, **H.Huang**, F.Prinz, M.Sugawara, and X.Tian, *Electrode/Electrolyte Interfaces in Solid Oxide Fuel Cells*, US Provisional Patent, filed in Jan 2007.
2. **H.Huang**, P.Su, R.Fasching, Y.Saito, and F.Prinz, *Design and Fabrication Method of Thin Film Solid Oxide Fuel Cells*, US Patent, filed in September 2006.
3. **H.Huang**, F.Prinz, M.Nakamura, T.Holme, and Y.Saito, *High Functional Thin Films for Solid Oxide Fuel Cells*, US Provisional Patent, filed in January 2006.
4. **H.Huang**, F.Prinz, M.Nakamura, and Y.Saito, *Sub-micro Solid Oxide Electrolyte Membrane*, US Patent, filed on June 30, 2005.
5. Y.Saito, F.Prinz, M.Nakamura, **H.Huang**, and R.Fashing, *Method for Making a Sub-micro Solid Oxide Electrolyte Membrane*, US Patent, filed on June 30, 2005.
6. **H.Huang**, F.Ooms, E.M.Kelder, and J.Schoonman, *Spinel Materials as Electrode of Lithium-ion Batteries*, European Patent, filed in 2001.
7. R.Xue, **H.Huang**, X.Huang and L.Chen, *PEO-based Electrolyte for Lithium Batteries*, CN Patent, filed in 1995.
8. **H.Huang**, X.Huang, R.Xue, and L.Chen, *Lithium Batteries with PAN-based Lithium Salt Complex*, CN Patent, filed in 1995