

## PUBLICATIONS (1992-2008)

### Patents:

1. X.Jiang, **H.Huang**, X.Tian, M.Sugawara, F.Prinz, and S.Bent  
Layer-Structured Fuel Cell Catalyst and Current Collectors  
US Provisional Patent, file in September 2007
2. H.Shim, M.Sugawara, **H.Huang**, and F.Prinz  
Solid Oxide Fuel Cell Components Tuned by Atomic Layer Deposition  
US Provisional Patent, file in May 2007
3. C.Chao, T.Holme, **H.Huang**, F.Prinz, M.Sugawara, and X.Tian  
Electrode/Electrolyte Interfaces in Solid Oxide Fuel Cells  
US Provisional Patent, file in Jan 2007
4. **H.Huang**, P.Su, F.Prinz, M.Nakamura, T.Holme, R.Fasching, and Y.Saito  
Membrane electrode assembly in Solid Oxide Fuel Cells  
US Patent, filed in Sep 2007
5. **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
6. **H.Huang**, F.Prinz, C.Chao, X.Tian, T.Holme, and M.Nakamura  
Modify Electrode/Electrolyte Interfaces to Increase Performances of Solid State Fuel Cells  
US Provisional Patent, filed in Jan, 2007
7. **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
8. **H.Huang**, F.Prinz, M.Nakamura, and Y.Saito  
Sub-micro Solid Oxide Electrolyte Membrane  
US Patent, filed on June 30, 2005
9. 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
10. **H.Huang**, F.Ooms, E.M.Kelder, and J.Schoonman  
Spinel Materials as Electrode of Lithium-ion Batteries  
European Patent, filed in 2001
11. R.Xue, **H.Huang**, X.Huang and L.Chen  
PEO-based Electrolyte for Lithium Batteries  
CN Patent, filed in 1995
12. **H.Huang**, X.Huang, R.Xue, and L.Chen  
Lithium Batteries with PAN-based Lithium Salt Complex  
CN Patent, filed in 1995

### Journal Papers

1. **H.Huang**, C.Hsieh, N.Kim, J.Stebbins, F.Prinz  
Structure, Local Environment, and Ionic Conduction in Scandia Stabilized Zirconia  
Solid State Ionics, in press
2. X.Jiang, **H.Huang**, F.Prinz, and S.Bent

- Application of Atomic Layer Deposition of Platinum to Solid Oxide Fuel Cells  
Chem. Mater., under revision
3. J.Shim, C.Chao, **H.Huang**, and F.B.Prinz  
Atomic Layer Deposition of Yttria-Stabilized Zirconia for Solid Oxide Fuel Cells  
Chem. Mater. 19, 3850-3854, 2007
  4. N.Kim, C.Hsieh, **H.Huang**, F.B.Prinz, and J.F.Stebbins  
High Temperature O17 MAS NMR Study of Calcia, Magnesia, Scandia and Yttria  
Stabilized Zirconia,  
Solid State Ionics, 178(2007)1499-1506
  5. X.Wang, **H.Huang**, T.Holme, X.Tian, and F.Prinz  
Thermal Stabilities of nanoporous Metallic Electrodes at Elevated Temperatures  
J. Power Sources, 175(2008)75
  6. **H.Huang**, T.Holme, and F.B.Prinz  
Oxygen Reduction Reactions on Pt, Ag, and Pt-Ag Alloys at Intermediate Temperatures  
ECS Transactions, 32(3): Physical and Analytical Electrochemistry (General), 31-40
  7. **H.Huang**, M.Nakamura, P.Su, R.Fashing, Y.Saito, and F.B.Prinz  
High-Performance Ultrathin Solid Oxide Fuel Cells for Low Temperature Operation  
J.ELECTROCHEM.SOC., 154(1): B20, 2007
  8. **H.Huang**, T.M.Gur, Y.Saito, and F.B.Prinz  
High Ionic Conductivity in Nano-crystalline Gadolinia-doped Ceria Films  
APPLIED PHYSICS LETTER, 89:143107, 2006
  9. R.Pornprasertsuk, J.Cheng, **H.Huang**, and F.B.Prinz  
Electrochemical Impedance Analysis of Solid Oxide Fuel Cell Electrolyte Using Kinetic  
Monte Carlo Technique  
SOLID STATE IONICS, 178: 195-205, 2007
  10. **H.Huang**, E.M.Kelder, and J.Schoonman  
Graphite/Metal Oxide Composites as Anode for Li-ion Batteries  
J POWER SOURCES, 97-8: 114-117, 2001
  11. **H.Huang**, E.M.Kelder, M.Jak, L.Chen, and J.Schoonman  
Influences of Dynamic Compaction on Lithium Intercalation into Graphite Anode  
SOLID STATE IONICS, 139 (1-2): 67-74, 2001
  12. **H.Huang**, E.M.Kelder, L.Chen, and J.Schoonman  
Lithium Intercalation Characteristics of B-C-N and C-B-Si-N Carbon Alloys  
J POWER SOURCES, 94 (1): 108-111, 2001
  13. **H.Huang**, C.Chen, R.C.Perego, E.M.Kelder, L.Chen, and J.Schoonman  
Electrochemical Characterization of Commercial Lithium Manganese Oxide Powders  
SOLID STATE IONICS, 127 (1-2): 31-42, 2000
  14. **H.Huang**, E.M.Kelder, and J.Schoonman  
Preparation and Electrochemical Characteristics of Lithium Titanium Oxide Spinel  
 $\text{Li}_4\text{Ti}_5\text{O}_{12}$   
Proceeding of Electrochemical Society 198<sup>th</sup> Meetings (Rechargeable Lithium Batteries),  
Phoenix, AZ, USA, October 2000, 120-127.
  15. **H.Huang**, E.M.Kelder, and J.Schoonman  
Electrochemical Impedance Spectroscopy Analyses on the Processes of Lithium  
Intercalation into  $\text{Li}_4\text{Ti}_5\text{O}_{12}$   
Proceeding of Electrochemical Society 198<sup>th</sup> Meetings (Rechargeable Lithium Batteries),  
Phoenix, AZ, USA, October 2000, 127-137.
  16. **H.Huang**, E.M.Kelder, L.Chen, and J.Schoonman  
Electrochemical Characteristics of  $\text{Sn}_{1-x}\text{Si}_x\text{O}_2$  as Anode for Lithium-ion Batteries

- J POWER SOURCES, 82: 362-367, 1999
17. **H.Huang**, E.M.Kelder, L.Chen, and J.Schoonman  
Preparation and Structure of Silicon Doped Tin Oxide Composites Using an Advanced Ultrasonic Spray Method  
SOLID STATE IONICS, 120 (1-4): 205-210, 1999
  18. Z.Lu, X.Huang, **H.Huang**, L.Chen, and J.Schoonman  
The Phase Transition and Optimal Synthesis Temperature of LiNiO<sub>2</sub>  
SOLID STATE IONICS, 120 (1-4): 103-107, 1999
  19. **H.Huang**, W.Liu, X.Huang, L.Chen, E.M.Kelder, and J.Schoonman  
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SOLID STATE IONICS, 110 (3-4): 173-178, 1998
  20. W.F.Liu, X.J.Huang, G.B.Li, **H.Huang** R.J.Xue, and L.Q.Chen  
Electrochemical and X-ray Photospectroscopy Studies of Polytetrafluoroethylene and Polyvinylidene Fluoride in Li/C Batteries  
J POWER SOURCES, 68 (2): 344-347, 1997
  21. H.Yan, X.Huang, Z.Lu, **H.Huang**, R.Xue, and L.Chen  
Microwave Synthesis of LiCoO<sub>2</sub> Cathode Materials  
J POWER SOURCES, 68 (2): 530-532, 1997
  22. H.Li, Z.Lu, **H.Huang**, X.Huang, and L.Chen  
Electrochemical Impedance Spectroscopic Study of the Rate-determining Step of Li-ion Intercalation and De-intercalation in Li<sub>x</sub>NiO<sub>2</sub> Cathodes  
IONICS, 2:259, 1996
  23. Z.Wang, B.Huang, **H.Huang**, R.Xue, L.Chen, and F.Wang  
Fluorescence Spectroscopic Study on the Interactions Among the Components of Solid Electrolyte Polyacrylonitrile/Dimethylformamide/LiClO<sub>4</sub>  
SOLID STATE IONICS, 86-8: 313-317, 1996
  24. B.Huang, Z.X.Wang, G.B.Li, **H.Huang**, R.Xue, L.Chen, and F.Wang  
Lithium Ion Conduction in Polymer Electrolytes Based on PAN  
SOLID STATE IONICS, 85 (1-4): 79-84, 1996
  25. Z.Wang, B.Huang, **H.Huang**, R.Xue, L.Chen, and F.Wang  
Infrared Spectroscopic Study of the Interaction Between Lithium Salt LiClO<sub>4</sub> and the Plasticizer Ethylene Carbonate in the Polyacrylonitrile-based Electrolyte  
SOLID STATE IONICS, 85 (1-4): 143-148, 1996
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Experimental Evidence of the Interaction Between Polyacrylonitrile and Ethylene Carbonate Plasticizer by Raman Spectroscopy  
J RAMAN SPECTROSC, 27 (8): 609-613, 1996
  27. Z.Wang, B.Huang, **H.Huang**, R.Xue, L.Chen, and F.Wang  
The Vibrational Spectroscopic Study of Polyacrylonitrile-based Electrolyte  
SPECTROCHIM ACTA A, 52 (6): 691-703, 1996
  28. Z.Wang, B.Huang, **H.Huang**, R.Xue, L.Chen, and F.Wang  
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A Vibrational Spectroscopic Study on the Interaction Between Lithium Salt and Ethylene Carbonate Plasticizer for PAN-based Electrolytes  
J ELECTROCHEM SOC, 143 (5): 1510-1514, 1996
  30. GB Li, Z Lu, BY Huang, **H.Huang**, RJ Xue, and LQ Chen

- An Evaluation of Lithium Intercalation Capacity into Carbon by XRD Parameters  
SOLID STATE IONICS, 81 (1-2): 15-18, 1995
31. R.Xue, **H.Huang**, G.Li, and L.Chen  
Effects of Cathode Anode Mass-Ratio in Lithium-ion Secondary Cells  
J POWER SOURCES, 55 (1): 111-114, 1995
  32. R.Xue, **H.Huang**, X.Huang and L.Chen  
Storage Study of Lithium Battery with PEO-PC-LiClO<sub>4</sub> Electrolyte  
SOLID STATE IONICS, 74 (3-4): 133-136, 1994
  33. **H.Huang**, L.Chen, X.Huang and R. Xue  
Studies on PAN-Based Lithium Salt Complex  
ELECTROCHIM ACTA, 37 (9): 1671-1673, 1992
  34. X.Huang, L.Chen, **H.Huang**, Y.Ma, and S.Fang  
Electrical-Properties of a Single Lithium-ion Conductor PMSEO-PLPMS  
SOLID STATE IONICS, 51 (1-2): 69-73, 1992

### Conference Abstracts and Presentations

1. **H.Huang**, J.H.Shim, C.C.Chao, R.Pornprasertsuk, M.Sugawara, T.M.Gur, F.B.Prinz,  
"Characteristics of oxygen reduction on Nanocrystalline YSZ",  
213<sup>rd</sup> Electrochemical Society Meeting, Phoenix, AZ, May 2008, accepted
2. **H.Huang**, T.Holme, and F.B.Prinz  
"Increased Cathodic Kinetics in IT-SFOCs by Inserting Highly-Conductive Nanocrystalline  
Materiald"  
6th International Fuel Cell conference, Denver, CO, June, 2008, accepted
3. **H.Huang**, C.Hsieh, N.Kim, J.Stebbins, F.Prinz,  
Structure, Local Environment, and Ionic Conduction in Scandia Stabilized Zirconia  
16<sup>th</sup> International Conference on Solid State Ionics, Shanghai, China, July 2007
4. R.Pornprasertsuk, J.Cheng, T.Holme, **H.Huang**, F.B.Prinz,  
Quantum Simulation Complemented with Kinetic Monte Carlo Method for Solid Oxide  
Fuel Cell  
16<sup>th</sup> International Conference on Solid State Ionics, Shanghai, China, July 2007
5. **H. Huang**, P.Su, and F.Prinz  
Reducing Cathodic Overvoltage in Ultra-thin SOFCs  
16<sup>th</sup> International Conference on Solid State Ionics, Shanghai, China, July 2007
6. J.Cheng, **H.Huang**, and F.Prinz  
Fabrication of Sub-micron Thick Solid Oxide Fuel Cells Using a Focused Ion Beam.  
Materials Research Society Fall Conference, Boston, MA, USA, November 2006
7. **H.Huang**, T.Holme, and F.Prinz  
Oxygen Reduction Characteristics on Ag, Pt, and Ag-Pt Alloys in Low-Temperature  
SOFCs  
Electrochemical Society 210<sup>th</sup> Meetings, Cancun, Mexico, October 2006
8. **H.Huang**, M.Nakamura, P.Su, R.Fashing, Y.Saito, and F.Prinz  
MEMS Fabrication and Performances of Nano-Thin Solid Oxide Fuel Cells  
Electrochemical Society 208<sup>th</sup> Meetings, Los Angeles, CA, USA, October 2005
9. M.Lee, **H.Huang**, and F.Prinz  
Observation of Gd segregation in GDC using Atomic Force Microscopy Based Analyses  
Electrochemical Society 208<sup>th</sup> Meetings, Los Angeles, CA, USA, October 2005
10. J.Cheng, R.Pornprasertsuk, **H.Huang**, Y.Saito, and F.Prinz

- Ion-Irradiation effects on Yttria-stabilized Zirconia Thin Films  
Electrochemical Society 208<sup>th</sup> Meetings, Los Angeles, CA, USA, October 2005
11. K.Fan, M.Lee, J.Cheng, **H.Huang**, Y.Saito, and F.Prinz  
Microstructure and Ion Conductivity of irradiated Single Crystal Yttria-stabilized Zirconia  
Electrochemical Society 208<sup>th</sup> Meetings, Los Angeles, CA, USA, October 2005
  12. **H.Huang**, T.M.Gur, Y.Saito, and F.Prinz  
Ultra Thin Gadolinia-doped Ceria Films: Ionic Conduction Characteristics and Application in SOFC  
15<sup>th</sup> International Conference on Solid State Ionics, Baden-Baden, Germany, July 2005
  13. **H.Huang**, Y.Saito, and F.Prinz  
Ionic Conduction Enhancement in Nano-Scale Thin Film Gadolinia-doped Ceria Electrolyte  
Electrochemical Society 206<sup>th</sup> Meetings, Honolulu, HA, USA, October 2004
  14. M.Nakamura, **H.Huang**, R. Fasching, Y. Saito, and F. Prinz  
Fabrication of Si-based Thin Film Solid Oxide Fuel Cell  
Electrochemical Society 206<sup>th</sup> Meetings, Honolulu, HA, USA, October 2004
  15. J. Cheng, R. Pornprasertsuk, **H. Huang**, Y. Saito, and F. Prinz  
Effects of Heavy Ion Irradiation on the Transport Properties of Yttria-Stabilized Zirconia  
Electrochemical Society 206<sup>th</sup> Meetings, Honolulu, HA, USA, October 2004
  16. I.Taniguchi, **H.Huang**, R.van Langschoot, and J.Schoonman  
Thin Film Electrodes for IT-SOFC prepared by Electrostatic Spray Pyrolysis  
European symposium on Fuel Cells, Switzerland, July 2002
  17. **H.Huang**, E.M.Kelder, Y.Kamlag, and J.Schoonman  
Hydrogen Storage in SiC Materials  
NATO Advanced Study Institute on New Trends in Intercalation Compounds for Energy Storage, Sozopol, Bulgaria, September, 2001
  18. **H.Huang**, E.M.Kelder, Y.Kamlag, and J.Schoonman  
Correlation Between Hydrogen Storage and Lithium Intercalation in Carbon-based Materials at Ambient Conditions  
7th International Conference on Hydrogen Materials Science and Chemistry of Metal Hydrides, Ukraine, September 2002
  19. **H.Huang**, E.M.Kelder, and J.Schoonman  
Preparation and Electrochemical Characteristics of Lithium Titanium Oxide Spinel  $\text{Li}_4\text{Ti}_5\text{O}_{12}$   
Electrochemical Society 198<sup>th</sup> Meetings, Phoenix, AZ, USA, October 2000
  20. **H.Huang**, E.M.Kelder, and J.Schoonman  
Electrochemical Impedance Spectroscopy Analyses on the Processes of Lithium Intercalation into  $\text{Li}_4\text{Ti}_5\text{O}_{12}$   
Electrochemical Society 198<sup>th</sup> Meetings, Phoenix, AZ, USA, October 2000
  21. 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 198<sup>th</sup> Meetings, Phoenix, AZ, USA, October 2000
  22. **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
  23. **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  
8<sup>th</sup> International Meetings on Lithium Batteries, Nagoya, Japan, June 1996
  24. **H.Huang**, R.Xue, H.Yan, G.Li, B.Huang, and L.Chen

- Studies on the Materials of Secondary Lithium-Ion Battery  
46<sup>th</sup> Annual Meeting of International Society of Electrochemistry, China, August 1995
25. **H.Huang**, H.Yan, Z.Lu, R.Xue, and L.Chen  
Studies on the Preparation Techniques of LiCoO<sub>2</sub>  
7<sup>th</sup> National Electrochemistry Conference, Xiamen, China, August 1995
26. R.Xue, **H.Huang**, X.Huang, and L.Chen  
IS Study on Lithium Ion Battery During Cycle  
10<sup>th</sup> International Conference on Solid State Ionics, Singapore, December 1995
27. H.Yan, Z.Lu, **H.Huang**, B.Huang, G.Li, R.Xue, and L.Chen  
Study on the LiCoO<sub>2</sub> Cathode Prepared by Microwave  
8<sup>th</sup> National Electrochemistry Conference, Xiamen, China, August 1995
28. **H.Huang**, X.Huang, R.Xue and L.Chen  
PAN-Based Polymer Electrolyte and Its Applications in Lithium Batteries  
3<sup>rd</sup> Asian Conference on Solid State Ionics, India, October 1992

### Invited Talks

1. High-Performance Solid Oxides Fuel Cells – Integrating nano-structured materials and nanotechnologies, Wright State University, Dayton, USA, April 2007
2. High-Performance Solid Oxides Fuel Cells – Integrating nano-structured materials and nanotechnologies, Pittsburgh University, Pittsburgh, USA, April 2007
3. High-Performance Solid Oxides Fuel Cells – Integrating nano-structured materials and nanotechnologies, Maryland University, Baltimore, USA, April 2007
4. Ultra-thin Solid Oxides Fuel Cells for Low Temperature Operations  
Beijing University, Beijing, China, August 2006
5. Ultra-thin Solid Oxides Fuel Cells for Low Temperature Operations  
Max-Planck Institute for Solid State Research, Stuttgart, Germany, June 2006
6. Ultra-thin Solid Oxides Fuel Cells for Low Temperature Operations  
Delft University of Technology, Delft, The Netherlands, January 2006
7. Fabrication of Micro/Bio Fuel Cells  
Delft University of Technology, Delft, The Netherlands, July 2005
8. Solid Ionic Conductors  
Stanford University, Stanford, USA, December 2005
9. Ionic Conduction Characteristics in Nano-thin Solid Electrolyte  
Stanford University, Stanford, USA, July 2004
10. Lithium Intercalation and Hydrogen Storage in Nano-Structured Materials  
Stanford University, Stanford, USA, September 2003
11. Nano-Structured Materials for Lithium-ion Battery  
Beijing University, Beijing, China, January 2001
12. Structure and Electrochemistry of Nano-Sn<sub>1-x</sub>Si<sub>x</sub>O<sub>2</sub> Upon Lithium Intercalation  
Institute of Physics, Chinese Academy of Science, Beijing, China, January 2001
13. PAN-Based Polymer Electrolyte and Its Applications in Lithium Batteries  
3<sup>rd</sup> Asian Conference on Solid State Ionics, India, 1992