



Friedrich Prinz

Finmeccanica Professor and Senior Fellow at the Precourt Institute for Energy
Mechanical Engineering

CONTACT INFORMATION

- **Alternate Contact**

Anne Blenman Hare - NPL Program Administrator

Email abhare@stanford.edu

Tel 650-497-0411

Bio

BIO

Fritz Prinz is the Finmeccanica Professor in the School of Engineering at Stanford University, Professor of Materials Science and Engineering, Professor of Mechanical Engineering and Senior Fellow at the Precourt Institute for Energy. He also serves as the Director of the Nanoscale Prototyping Laboratory at Stanford. A solid-state physicist by training, Prinz leads a group of doctoral students who are addressing fundamental issues on energy conversion and storage at the nanoscale. In his Laboratory, prototype fuel cells, solar cells and batteries are used to test new concepts and novel material structures using atomic layer deposition, scanning tunneling microscopy and other technologies. Prinz is also interested in learning from nature, particularly understanding the electron transport chain in plant cells. The Prinz group, in collaboration with biologist Arthur Grossman, were the first to extract electrons directly from plant cells subjected to light stimulus. Before coming to Stanford in 1994, he was on the faculty at Carnegie Mellon University. Prinz earned a PhD in physics at the University of Vienna in Austria.

ACADEMIC APPOINTMENTS

- Professor, Mechanical Engineering
- Professor, Materials Science and Engineering
- Senior Fellow, Precourt Institute for Energy
- Affiliate, Stanford Woods Institute for the Environment

HONORS AND AWARDS

- Sir Christopher Hinton Lecture, Royal Academy of Engineering (1991)
- Engineer of the Year, American Society of Mechanical Engineers, Pittsburgh, PA Section (1991 - 1992)
- Corresponding member, Austrian Academy of Science, Vienna, Austria (1996)
- Award for Excellence, Literati Club (2002)
- Most Outstanding Paper in the 2001 volume, Rapid Prototyping Journal (2002)
- The AM Strickland Prize for Best Paper in 2005, The Institution of Mechanical Engineers, London, UK (2005)
- Tedori-Callinan Lecture, University of Pennsylvania (2006)
- Fellow, American Association for the Advancement of Science (AAAS) (2007)

- Woodruff Colloquium in the Theme of Energy, Georgia Institute of Technology, Atlanta, GA (2008)
- Munushian Lecture, University of Southern California (2009)

PROFESSIONAL EDUCATION

- PhD, University of Vienna , Physics (1975)

Teaching

COURSES

2017-18

- Additive Manufacturing- From Fundamentals to Applications: ME 232 (Sum)
- Mechanical Engineering Design: ME 113 (Spr)

2016-17

- Additive Manufacturing- From Fundamentals to Applications: ME 232 (Sum)
- Mechanical Engineering Design: ME 113 (Spr)

2015-16

- Fuel Cell Science and Technology: ME 260 (Spr)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Hyun Soo Han, Simin Nie, Woosung Park, Shicheng Xu

Doctoral Dissertation Reader (AC)

Sang Chul Lee

Postdoctoral Research Mentor

Georgi Diankov

Publications

PUBLICATIONS

- **Implications of Electricity Liberalization for Combined Heat and Power (CHP) Fuel Cell Systems (FCSs): a Case Study of the United Kingdom** *Journal of Power Sources*.
Prinz, F., B., Colella, W.
- **Design, Construction, and Testing of a Fuel Cell Powered Scooter** *Journal of Power Sources*.
Prinz, F., B., Colella, W.
- **Modelling Results for the Thermal Management Sub-System of a Combined Heat and Power (CHP) Fuel Cell Systems (FCS)** *Journal of Power Sources*.
Prinz, F., B., Colella, W.
- **Design Considerations for Effective Control of an Afterburner Sub-System in a Combined Heat and Power (CHP) Fuel Cell System (FCS)** *Journal of Power Sources*.
Prinz, F., B., Colella, W.
- **Design Options for Achieving a Rapidly Variable Heat-to-Power Ratio in a Combined Heat and Power (CHP) Fuel Cell System** *Journal of Power Sources*.
Prinz, F., B., Colella, W.
- **Near Net Shape Forming Of Advanced Structural Ceramic Devices**
Prinz, F., B., Liu, H.

- **Micro-scale Electrochemistry: Application to Fuel Cell**
Prinz, F., B., O'Hayre, R.
- **Cantilever Tip-Probe Arrays for Simultaneous SECM and AFM Analysis** *Rapid Prototyping Laboratory*
Tao, Y., Fasching, R., Prinz, F.
- **The Mesicopter: A Meso-Scale Flight Vehicle** *NIAC Phase II Technical Proposal*
Kroo, I., Prinz, F.
- **Atomic Layer Deposition of Platinum Catalysts on Nanowire Surfaces for Photoelectrochemical Water Reduction** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Dasgupta, N. P., Liu, C., Andrews, S., Prinz, F. B., Yang, P.
2013; 135 (35): 12932-12935
- **Ultra-thin platinum catalytic electrodes fabricated by atomic layer deposition.** *Physical chemistry chemical physics*
An, J., Kim, Y., Prinz, F. B.
2013; 15 (20): 7520-7525
- **Aberration-Corrected TEM Imaging of Oxygen Occupancy in YSZ** *JOURNAL OF PHYSICAL CHEMISTRY LETTERS*
An, J., Koh, A. L., Park, J. S., Sinclair, R., Guer, T. M., Prinz, F. B.
2013; 4 (7): 1156-1160
- **Enhanced oxygen exchange on surface-engineered yttria-stabilized zirconia.** *ACS nano*
Chao, C., Park, J. S., Tian, X., Shim, J. H., Gür, T. M., Prinz, F. B.
2013; 7 (3): 2186-2191
- **Spatial Variation of Available Electronic Excitations within Individual Quantum Dots** *NANO LETTERS*
Jung, H. J., Dasgupta, N. P., Van Stockum, P. B., Koh, A. L., Sinclair, R., Prinz, F. B.
2013; 13 (2): 716-721
- **Atomic Scale Verification of Oxide-Ion Vacancy Distribution near a Single Grain Boundary in YSZ** *Scientific Reports*
An, J., Park, J. S., Koh, A. L., Lee, Hark, B., Jung, H. J., Schoonman, J., Prinz, F. B.
2013
- **Effect of Cation Non-Stoichiometry and Crystallinity on the Ionic Conductivity of Atomic Layer Deposited Y:BaZrO₃ Films** *Thin Solid Films*
Park, J., S., Kim, Y., B., An, J., Shim, J., H., Gür, T., M., Prinz, F., B.
2013; 539: 166-169
- **Ultra-Thin Catalytic Electrodes for LT-SOFC** *Phys. Chem. Chem. Phys.*
An, J., Kim, Y., B., Prinz, F., B.
2013; 15: 7520
- **Editor's Choice (Materials Science: 3D Lowers T)** *Science*
Prinz, F., B., Lavine, Marc, S.
2013; 342: 15
- **Three-Dimensional Nanostructured Bilayer Solid Oxide Fuel Cell with 1.3 W/cm² at 450C** *Nano Letters*
An, J., Kim, Y., Park, J., Gur, Turgut, M., Prinz, F., B.
2013
- **STANFORD ENGINEERS DEVELOP FUEL CELL THAT CAN DELIVER RECORD POWER-PER-SQUARE INCH AT RECORD-LOW TEMPERATURES** (<http://engineering.stanford.edu/research-profile/stanford-engineers-develop-fuel-cell-can-deliver-record-power-square-inch-record-lo>) *Stanford Engineering News*
Prinz, F., B., Davenport, M.
2013
- **Nanotubular Array Solid Oxide Fuel Cell** *ACS Nano*
Motoyama, M., Chao, C., An, J., Jung, H. J., Gür, Turgut, M., Prinz, F. B.
2013

- **Atomic layer deposition of thin-film ceramic electrolytes for high-performance fuel cells** *J. Mater. Chem. A (feature article)*
Shim, J. H., Kang, S., Cha, S., Lee, W., Kim, Y. B., Park, J. S., Prinz, F. B.
2013
- **Enhancing Charge Transfer Kinetics by Nanoscale Catalytic Cermet Interlayer** *ACS APPLIED MATERIALS & INTERFACES*
An, J., Kim, Y., Guer, T. M., Prinz, F. B.
2012; 4 (12): 6789-6794
- **Oxygen diffusion across the grain boundary in bicrystal yttria stabilized zirconia** *SOLID STATE COMMUNICATIONS*
Park, J. S., Kim, Y., An, J., Prinz, F. B.
2012; 152 (24): 2169-2171
- **Observing the Nucleation Phase of Atomic Layer Deposition In Situ** *CHEMISTRY OF MATERIALS*
Mack, J. F., Van Stockum, P. B., Yemane, Y. T., Logar, M., Iwadate, H., Prinz, F. B.
2012; 24 (22): 4357-4362
- **In Situ Cycle-by-Cycle Flash Annealing of Atomic Layer Deposited Materials** *JOURNAL OF PHYSICAL CHEMISTRY C*
Langston, M. C., Dasgupta, N. P., Jung, H. J., Logar, M., Huang, Y., Sinclair, R., Prinz, F. B.
2012; 116 (45): 24177-24183
- **Thickness effects of yttria-doped ceria interlayers on solid oxide fuel cells** *JOURNAL OF POWER SOURCES*
Fan, Z., An, J., Iancu, A., Prinz, F. B.
2012; 218: 187-191
- **Nickel Silicide Nanowire Arrays for Anti-Reflective Electrodes in Photovoltaics** *ADVANCED FUNCTIONAL MATERIALS*
Dasgupta, N. P., Xu, S., Jung, H. J., Iancu, A., Fasching, R., Sinclair, R., Prinz, F. B.
2012; 22 (17): 3650-3657
- **Ab initio kinetic Monte Carlo model of ionic conduction in bulk yttria-stabilized zirconia** *MODELLING AND SIMULATION IN MATERIALS SCIENCE AND ENGINEERING*
Lee, E., Prinz, F. B., Cai, W.
2012; 20 (6)
- **Improved oxygen surface exchange kinetics at grain boundaries in nanocrystalline yttria-stabilized zirconia** *MRS COMMUNICATIONS*
Park, J. S., Holme, T. P., Shim, J. H., Prinz, F. B.
2012; 2 (3): 107-111
- **High aspect ratio and high breakdown strength metal-oxide capacitors** *APPLIED PHYSICS LETTERS*
Usui, T., Mollinger, S. A., IANCU, A. T., Reis, R. M., Prinz, F. B.
2012; 101 (3)
- **Structural and compositional analysis of solid oxide fuel cell electrolytes using transmission electron microscopy** *INTERNATIONAL JOURNAL OF PRECISION ENGINEERING AND MANUFACTURING*
An, J., Kim, Y. B., Jung, H. J., Park, J. S., Cha, S. W., Guer, T. M., Prinz, F. B.
2012; 13 (7): 1273-1279
- **Nanoscale impedance and complex properties in energy-related systems** *MRS BULLETIN*
Lee, W., Prinz, F. B., Chen, X., Nonnenmann, S., Bonnell, D. A., O'Hayre, R. P.
2012; 37 (7): 659-667
- **Nanostructured Platinum Catalysts by Atomic-Layer Deposition for Solid-Oxide Fuel Cells** *ADVANCED ENERGY MATERIALS*
Chao, C., Motoyama, M., Prinz, F. B.
2012; 2 (6): 651-654
- **Oxygen Surface Exchange at Grain Boundaries of Oxide Ion Conductors** *ADVANCED FUNCTIONAL MATERIALS*
Lee, W., Jung, H. J., Lee, M. H., Kim, Y., Park, J. S., Sinclair, R., Prinz, F. B.
2012; 22 (5): 965-971
- **Nanoscale membrane electrolyte array for solid oxide fuel cells** *ELECTROCHEMISTRY COMMUNICATIONS*
Su, P., Prinz, F. B.

2012; 16 (1): 77-79

- **Enhanced oxygen exchange and incorporation at surface grain boundaries on an oxide ion conductor** *ACTA MATERIALIA*
Shim, J. H., Park, J. S., Holme, T. P., Crabb, K., Lee, W., Kim, Y. B., Tian, X., Guer, T. M., Prinz, F. B.
2012; 60 (1): 1-7
- **Fluorine contamination in yttrium-doped barium zirconate film deposited by atomic layer deposition** *JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A*
An, J., Kim, Y. B., Park, J. S., Shim, J. H., Guer, T. M., Prinz, F. B.
2012; 30 (1)
- **Use of a high-flow diaphragm valve in the exhaust line of atomic layer deposition reactors** *JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A*
Dasgupta, N. P., Trejo, O., Prinz, F. B.
2012; 30 (1)
- **Patterned Silver Nanomesh Cathode for Low-Temperature Solid Oxide Fuel Cells** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
Shim, J. H., Kim, Y. B., Park, J. S., An, J., Guer, T. M., Prinz, F. B.
2012; 159 (5): B541-B545
- **Mechanical masking of films deposited by atomic layer deposition** *JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A*
Langston, M. C., Usui, T., Prinz, F. B.
2012; 30 (1)
- **Surface-Modified Low-Temperature Solid Oxide Fuel Cell** *ADVANCED FUNCTIONAL MATERIALS*
Kim, Y. B., Holme, T. P., Guer, T. M., Prinz, F. B.
2011; 21 (24): 4684-4690
- **Oxygen activation over engineered surface grains on YDC/YSZ interlayered composite electrolyte for LT-SOFC** *JOURNAL OF POWER SOURCES*
Kim, Y. B., Park, J. S., Guer, T. M., Prinz, F. B.
2011; 196 (24): 10550-10555
- **A combined scanning tunneling microscope-atomic layer deposition tool** *REVIEW OF SCIENTIFIC INSTRUMENTS*
Mack, J. F., Van Stockum, P. B., Iwadata, H., Prinz, F. B.
2011; 82 (12)
- **ALD for clean energy conversion, utilization, and storage** *MRS BULLETIN*
Elam, J. W., Dasgupta, N. P., Prinz, F. B.
2011; 36 (11): 899-906
- **In vivo electrochemical impedance measurement on single cell membrane** *MICROELECTRONIC ENGINEERING*
Bai, S., Prinz, F. B.
2011; 88 (10): 3094-3100
- **Effect of crystallinity on proton conductivity in yttrium-doped barium zirconate thin films** *SOLID STATE IONICS*
Kim, Y. B., Guer, T. M., Jung, H., Kang, S., Sinclair, R., Prinz, F. B.
2011; 198 (1): 39-46
- **Three-dimensional biodegradable microscavolding: Scaffold characterization and cell population at single cell resolution** *ACTA BIOMATERIALIA*
Ryu, W., Hammerick, K. E., Kim, Y. B., Kim, J. B., Fasching, R., Prinz, F. B.
2011; 7 (9): 3325-3335
- **Cup-shaped yttria-doped barium zirconate membrane fuel cell array** *MICROELECTRONIC ENGINEERING*
Su, P., Prinz, F. B.
2011; 88 (8): 2405-2407
- **In vivo O₂ measurement inside single photosynthetic cells** *BIOTECHNOLOGY LETTERS*
Bai, S., Ryu, W., Fasching, R. J., Grossman, A. R., Prinz, F. B.
2011; 33 (8): 1675-1681
- **Improved Solid Oxide Fuel Cell Performance with Nanostructured Electrolytes** *ACS NANO*
Chao, C., Hsu, C., Cui, Y., Prinz, F. B.

2011; 5 (7): 5692-5696

- **Nonprecious Metal Catalysts for Low Temperature Solid Oxide Fuel Cells** *JOURNAL OF PHYSICAL CHEMISTRY C*
Holme, T. P., Prinz, F. B.
2011; 115 (23): 11641-11648
- **Enhancing Oxide Ion Incorporation Kinetics by Nanoscale Yttria-Doped Ceria interlayers** *NANO LETTERS*
Fan, Z., Prinz, F. B.
2011; 11 (6): 2202-2205
- **Crater patterned 3-D proton conducting ceramic fuel cell architecture with ultra thin Y:BaZrO₃ electrolyte** *ELECTROCHEMISTRY COMMUNICATIONS*
Kim, Y. B., Guer, T. M., Kang, S., Jung, H., Sinclair, R., Prinz, F. B.
2011; 13 (5): 403-406
- **Atomic Layer Deposition of Lead Sulfide Quantum Dots on Nanowire Surfaces** *NANO LETTERS*
Dasgupta, N. P., Jung, H. J., Trejo, O., McDowell, M. T., Hryciw, A., Brongersma, M., Sinclair, R., Prinz, F. B.
2011; 11 (3): 934-940
- **Enhancing ionic conductivity of bulk single-crystal yttria-stabilized zirconia by tailoring dopant distribution** *PHYSICAL REVIEW B*
Lee, E., Prinz, F. B., Cai, W.
2011; 83 (5)
- **Elastic Properties of Induced Pluripotent Stem Cells** *TISSUE ENGINEERING PART A*
Hammerick, K. E., Huang, Z., Sun, N., Lam, M. T., Prinz, F. B., Wu, J. C., Commons, G. W., Longaker, M. T.
2011; 17 (3-4): 495-502
- **Gadolinia-doped Ceria Cathode Interlayer for Low Temperature Solid Oxide Fuel Cell** *12th International Symposium on Solid Oxide Fuel Cells (SOFC)*
Kim, Y. B., Guer, T. M., Prinz, F. B.
ELECTROCHEMICAL SOC INC.2011: 1155-59
- **Silver Nanomesh as a Cathode for Solid Oxide Fuel Cells** *ECS Transactions*
Shim, J., H., Kim, Y., B., Park, J., S., Prinz, F., B.
2011; 35: 2209-2212
- **Low Temperature Direct Methanol Fuel Cell With YSZ Electrolyte** *ECS Trans*
Komadina, J., Kim, Y. B., Park, J. S., Gür, T., Kang, S. K., Prinz, F. B.
2011; 35
- **Atomic Layer Deposited Yttria Stabilized Zirconia Barrier Layer for Proton Conducting Oxide (Invited)** *ECS Trans*
Park, J., S., Kang, S., K., Gür, T., M., Prinz, F., B.
2011; 41: 315-319
- **Improving solid oxide fuel cells with yttria-doped ceria interlayers by atomic layer deposition** *JOURNAL OF MATERIALS CHEMISTRY*
Fan, Z., Chao, C., Hossein-Babaei, F., Prinz, F. B.
2011; 21 (29): 10903-10906
- **Stress-driven grain growth in nanocrystalline Pt thin films** *SCRIPTA MATERIALIA*
Sharon, J. A., Su, P., Prinz, F. B., Hemker, K. J.
2011; 64 (1): 25-28
- **Low Temperature Direct Methanol Fuel Cell with YSZ Electrolyte** *12th International Symposium on Solid Oxide Fuel Cells (SOFC)*
Komadina, J., Kim, Y. B., Park, J. S., Guer, T. M., Kang, S., Prinz, F. B.
ELECTROCHEMICAL SOC INC.2011: 2855-66
- **Atomic Layer Deposited Yttria Stabilized Zirconia Barrier Layer for Proton Conducting Oxide** *7th Symposium on Atomic Layer Deposition Applications/220th Meeting of the Electrochemical-Society (ECS)*
Park, J. S., Kang, S. K., Guer, T. M., Prinz, F. B.
ELECTROCHEMICAL SOC INC.2011: 315-19

- **Fabrication of Nanotubular Membrane Electrode Assembly for A Solid Oxide Fuel Cell** *Symposium on Tutorials in Nanotechnology - Focus on Luminescence and Display Materials/218th Meeting of the Electrochemical-Society/High Resolution Characterization of Corrosion Processes 2/Symposium on Solid State Ionic Devices 8 - NEMCA*
Motoyama, M., Chao, C., Guer, T. M., Prinz, F. B.
ELECTROCHEMICAL SOCIETY INC.2011: 129–39
- **ALD-METAL UNCOOLED BOLOMETER** *24th IEEE International Conference on Micro Electro Mechanical Systems (MEMS)*
Yoneoka, S., Liger, M., Yama, G., Schuster, R., Purkl, F., Provine, J., Prinz, F. B., Howe, R. T., Kenny, T. W.
IEEE.2011: 676–679
- **Epitaxial and Polycrystalline Gadolinia-Doped Ceria Cathode Interlayers for Low Temperature Solid Oxide Fuel Cells** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
Kim, Y. B., Shim, J. H., Guer, T. M., Prinz, F. B.
2011; 158 (11): B1453-B1457
- **Electrodeposited Metallic Nanowires as a Scanning Probe Tip** *International Symposium on Pits and Pores IV - New Materials and Applications in Memory of Ulrich Gosele as Part of the 218th Meeting of the Electrochemical-Society*
Motoyama, M., Prinz, F. B.
ELECTROCHEMICAL SOC INC.2011: 101–8
- **Scanning tunneling spectroscopy of lead sulfide quantum wells fabricated by atomic layer deposition** *NANOTECHNOLOGY*
Lee, W., Dasgupta, N. P., Jung, H. J., Lee, J., Sinclair, R., Prinz, F. B.
2010; 21 (48)
- **Evidence of Proton Transport in Atomic Layer Deposited Yttria-Stabilized Zirconia Films** *CHEMISTRY OF MATERIALS*
Park, J. S., Kim, Y. B., Shim, J. H., Kang, S., Guer, T. M., Prinz, F. B.
2010; 22 (18): 5366-5370
- **Atomic Layer Deposition of Al-doped ZnO Films: Effect of Grain Orientation on Conductivity** *CHEMISTRY OF MATERIALS*
Dasgupta, N. P., Neubert, S., Lee, W., Trejo, O., Lee, J., Prinz, F. B.
2010; 22 (16): 4769-4775
- **Increased Cathodic Kinetics on Platinum in IT-SOFCs by Inserting Highly Ionic-Conducting Nanocrystalline Materials** *JOURNAL OF FUEL CELL SCIENCE AND TECHNOLOGY*
Huang, H., Holme, T., Prinz, F. B.
2010; 7 (4)
- **In vitro effects of direct current electric fields on adipose-derived stromal cells** *BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS*
Hammerick, K. E., Longaker, M. T., Prinz, F. B.
2010; 397 (1): 12-17
- **Active water management at the cathode of a planar air-breathing polymer electrolyte membrane fuel cell using an electroosmotic pump** *JOURNAL OF POWER SOURCES*
Fabian, T., O'Hayre, R., Litster, S., Prinz, F. B., Santiago, J. G.
2010; 195 (11): 3640-3644
- **Atomic Layer Deposition (ALD) Co-Deposited Pt-Ru Binary and Pt Skin Catalysts for Concentrated Methanol Oxidation** *CHEMISTRY OF MATERIALS*
Jiang, X., Guer, T. N., Prinz, F. B., Bent, S. F.
2010; 22 (10): 3024-3032
- **Passive water management at the cathode of a planar air-breathing proton exchange membrane fuel cell** *JOURNAL OF POWER SOURCES*
Fabian, T., O'Hayre, R., Litster, S., Prinz, F. B., Santiago, J. G.
2010; 195 (10): 3201-3206
- **Area-Selective Atomic Layer Deposition of Lead Sulfide: Nanoscale Patterning and DFT Simulations** *LANGMUIR*
Lee, W., Dasgupta, N. P., Trejo, O., Lee, J., Hwang, J., Usui, T., Prinz, F. B.
2010; 26 (9): 6845-6852
- **Direct Extraction of Photosynthetic Electrons from Single Algal Cells by Nanoprobng System** *NANO LETTERS*
Ryu, W., Bai, S., Park, J. S., Huang, Z., Moseley, J., Fabian, T., Fasching, R. J., Grossman, A. R., Prinz, F. B.

2010; 10 (4): 1137-1143

- **Design of an atomic layer deposition reactor for hydrogen sulfide compatibility** *REVIEW OF SCIENTIFIC INSTRUMENTS*
Dasgupta, N. P., Mack, J. F., Langston, M. C., Bousetta, A., Prinz, F. B.
2010; 81 (4)
- **Modification of Nafion (R) Using 3-mercaptopropyl Trimethoxysilane** *JOURNAL OF THE KOREAN PHYSICAL SOCIETY*
Lee, H., Park, S. B., Oh, M., Coo, K., Park, Y., Suzuki, S., Nagai, M., Prinz, F. B.
2010; 56 (4): 1215-1222
- **Atomistic simulations of surface segregation of defects in solid oxide electrolytes** *ACTA MATERIALIA*
Lee, H. B., Prinz, F. B., Cai, W.
2010; 58 (6): 2197-2206
- **Pulsed Direct Current Electric Fields Enhance Osteogenesis in Adipose-Derived Stromal Cells** *TISSUE ENGINEERING PART A*
Hammerick, K. E., James, A. W., Huang, Z., Prinz, F. B., Longaker, M. T.
2010; 16 (3): 917-931
- **Kinetic Monte Carlo simulations of oxygen vacancy diffusion in a solid electrolyte: Computing the electrical impedance using the fluctuation-dissipation theorem** *ELECTROCHEMISTRY COMMUNICATIONS*
Lee, E., Prinz, F. B., Cai, W.
2010; 12 (2): 223-226
- **Sputtered Pt-Ru Alloys as Catalysts for Highly Concentrated Methanol Oxidation** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
Jiang, X., Guer, T. M., Prinz, F. B., Bent, S. F.
2010; 157 (3): B314-B319
- **Effects of Ion Irradiation on the Performance of Solid Oxide Fuel Cells** *J. Electrochem. Soc.*
Crabb, K. M., Park, J. S., Chao, C. -C., Prinz, F. B.
2010; 157: 166-172
- **Dopant-Induced Electronic Structure Modification of HOPG Surfaces: Implications for High Activity Fuel Cell Catalysts** *J. Phys. Chem. C*
Prinz, F. B., Zhou, Y., Holme, T., Berry, J., Ohno, T., Ginley, D.
2010; 114: 506-515
- **First principles study of doped carbon supports for enhanced platinum catalysts** *PHYSICAL CHEMISTRY CHEMICAL PHYSICS*
Holme, T., Zhou, Y., Pasquarelli, R., O'Hayre, R.
2010; 12 (32): 9461-9468
- **Effects of Ion Irradiation on the Performance of Solid Oxide Fuel Cells** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
Crabb, K. M., Park, J. S., Chao, C., Prinz, F. B.
2010; 157 (1): B166-B172
- **Interpretation of Low Temperature Solid Oxide Fuel Cell Electrochemical Impedance Spectra** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
Holme, T. P., Pornprasertsuk, R., Prinz, F. B.
2010; 157 (1): B64-B70
- **Nanopore Patterned Pt Array Electrodes for Triple Phase Boundary Study in Low Temperature SOFC** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
Kim, Y. B., Hsu, C., Connor, S. T., Guer, T. M., Cui, Y., Prinz, F. B.
2010; 157 (9): B1269-B1274
- **Impact of Accompanying Hydrogen Generation on Metal Nanotube Electrodeposition** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
Motoyama, M., Fukunaka, Y., Ogata, Y. H., Prinz, F. B.
2010; 157 (6): D357-D369
- **Catalysts with Pt Surface Coating by Atomic Layer Deposition for Solid Oxide Fuel Cells** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
Shim, J. H., Jiang, X., Bent, S. F., Prinz, F. B.
2010; 157 (6): B793-B797
- **Reduction and oxidation of oxide ion conductors with conductive atomic force microscopy** *NANOTECHNOLOGY*

- Lee, W., Lee, M., Kim, Y., Prinz, F. B.
2009; 20 (44)
- **Surface Modification of Yttria-Stabilized Zirconia Electrolyte by Atomic Layer Deposition** *NANO LETTERS*
Chao, C., Kim, Y. B., Prinz, F. B.
2009; 9 (10): 3626-3628
 - **Atomic Layer Deposition of Lead Sulfide Thin Films for Quantum Confinement** *CHEMISTRY OF MATERIALS*
Dasgupta, N. P., Lee, W., Prinz, F. B.
2009; 21 (17): 3973-3978
 - **Intermediate-Temperature Ceramic Fuel Cells with Thin Film Yttrium-Doped Barium Zirconate Electrolytes** *CHEMISTRY OF MATERIALS*
Shim, J. H., Park, J. S., An, J., Guer, T. M., Kang, S., Prinz, F. B.
2009; 21 (14): 3290-3296
 - **A Computational Comparison of Electron Transfer from Reduced Ferredoxin to Flavin Adenine Dinucleotide and a Gold Electrode** *JOURNAL OF PHYSICAL CHEMISTRY B*
Walch, S. P., Komadina, J. D., Prinz, F. B.
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