BIOGRAPHICAL AND BIBLIOGRAPHIC INFORMATION

Scott Alexander Barnett

Present Position:
Professor, Department of Materials Science and Engineering, Northwestern University
9/1/95 – present

Previous Positions:
- Fulbright Guest Professor, Centro Atomico Bariloche, 1/2016 – 4/2016
- Otto Mønsted Guest Professor, Danish Technical University, 3/2013 – 7/2013.
- Cheng Tsang Man Endowed Professor, Nanyang Technological University, 2009
- Chief Technical Consultant, Functional Coating Technology LLC, 1/1/02 – 9/1/11.
- Associate Department Chair, Department of Materials Science and Engineering, Northwestern University, 9/1/98 – 8/31/03
- Founder and Chief Technical Consultant, Applied Thin Films Inc, 1/1/98 – 12/31/01
- Visiting Scientist, Center for Materials Science, Los Alamos National Laboratories, 6/15/99 – 8/15/99
- Associate Professor, Department of Materials Science and Engineering, Northwestern University 9/1/91 - 8/31/95
- Assistant Professor, Department of Materials Science and Engineering, Northwestern University 9/1/86 - 8/31/91
- Visiting Professor, Department of Physics and Measurement Technology, Linkoping University, Sweden 6/1/85 - 8/31/86
- Research Professor, Department of Metallurgy and Mining Engineering, Coordinated Science Laboratory, and Materials Research Laboratory, University of Illinois at Urbana-Champaign 8/1/82 - 5/31/85

Degrees:
- B.S. Physics, Univ. of Illinois at Urbana-Champaign, 1976
- Ph.D. Metallurgy, Univ. of Illinois, at Urbana-Champaign, 1982.

Teaching Experience:
- Introduction to Materials Science (201) (Undergrad)
- Applications of Thermodynamics 314 (Undergrad)
- Ceramic Processing 340 (Undergrad/grad)
- Introductory Physics of Materials I 351-1 (Undergrad)
- Introductory Physics of Materials II 351-2 (Undergrad)
- Electronic Materials 355 (Grad/Undergrad)
- Electrochemical Energy Materials and Devices 382 (Grad/Undergrad)
- Chemical Thermodynamics 401 (Grad)
- Physics of Materials 405 (Grad)
- Fundamentals of Thin Film Materials 415 (Grad)

PhD Students (51 total):

Jerren Grimes	2022	
Dalton Cox	2022	
Nick Geisendorfer	2021	
Travis Schmauss	2021	
Maxwell Dylla	2020	
Matthew Lu	2020	Exponent consulting
Qinyuan Liu	2019	Microsoft
Xiankai Yu	2019	LBNL
Samuel Miller	2018	Corning
Hongqian Wang	2018	SG Motors
Justin Railsback	2016	Intel
Patrick Duffy	2016	Honeywell Aerospace
David Kennouche	2015	Bosch, Germany
Zhao Liu	2015	FEI Corporation
Daniel Fowler	2015	Duke University
Elizabeth Miller	2015	Pratt & Whitney (Connecticut)
Gareth Hughes	2014	3M
Kyle Yakal-Kremski	2015	NYC Department of Transportation
Ann Call	2015?	University of Sheffield, UK
Scott Cronin	2013	Intel Portland
Megna Shah	2011	General Electric, Cincinnati, OH
David Bierschenk	2011	Philips 66
Jacob Haag	2010	Wright Labs, Dayton, OH
Blake Stevens	2010	Alexandria LaunchLabs
James Wilson	2008	Apple Inc.
David Cohen	2008	Cranbrook Academy
Worawarit Kobsiriphat	2007	MTEC, Thailand
Yuanbo Lin	2007	Chevron
Tammy Lai	2006	Nalco Inc.
Brian Madsen	2005	Continental Industries
Zhongliang Zhan	2005	Shanghai Institute of Ceramics
Kurt Ruthe	2003	Phra Nakhon Si Ayutthaya, Thailand
Keith Martin	2001	Intel
Ilwon Kim	2000	
Manoj Pillai	2000	Bloom Energy
Quan Li	1999	University of Hong Kong
Erica Perry	1999	Louisiana Technical University
Paul DeLuca	1999	Rand Corporation
David Kaufman	1999	
Phil Yashar	1998	Intel
Anita Madan	1998	IBM Fishkill
Jon Guyer	1997	NIST
Tsepin Tsai	1997	Evonyx Corp.
Greg Labanda	1997	Schlumberger
Joanna Mirecki	1997	University of Michigan
Xi Chu	1996	Samsung

Meenam Shinn	1995	Fuel Cell Power Inc.
Li-Shun Wang	1994	Samsung
Paul Mirkarimi	1993	Lawrence Berkeley Labs
Roni Kaspi	1992	University of New Mexico
Chi-Hing Choi	1991	Intel

Professional Societies and Activities:

- Member, Materials Research Society
- Member, American Vacuum Society
    - Member, National Symposium Program Committee: 1982-83, 1984-85, 1990-91, 1992-93, Program Chair 1996
    - Co-organizer, Symposium on Thin Films in Microelectronics at the Int. Conf. Metall. Coatings, 1989.
    - Illinois Section Executive Committee Member, 1989-92.
    - Illinois Section Vice-Chair, 1992-93
    - Illinois Section Chair, 1994-96
- Member, Electrochemical Society
    - Chicago Section Secretary, 1989-90
    - Chicago Section Treasurer, 1990-91
    - Chicago Section Vice-Pres, 1991-92
    - Chicago Section President, 1992-93
- Member, American Ceramic Society
- Attendee and panel discussion leader: Department of Energy planning meeting for solid oxygen electrolysis systems, Phoenix, October, 2008
- Board of Directors: Solid Oxide Fuel Cells Canada – 2008 - 2013

Awards:

- Office of Naval Research Young Investigator Award, 1986
- Teacher of the Year, Materials Science, 1993
- AVS (American Vacuum Society) Fellow, 1998
- Cheng Tsang Man Endowed Professorship, Nanyang Technological University, 2008
- Otto Mønsted Guest Professorship, Danish Technical University, 2013
- Fulbright Award for collaboration with Centro Atomico, Bariloche, Argentina
- Electrochemical Society Fellow, 2017

Patents:

15. Adam E Jakus, Ramille N Shah, Nicholas R Geisendorfer, Scott A Barnett, Zhan Gao, "Three dimensional extrusion printed electrochemical devices," US #10236528B2
14. Scott A Barnett; David M Bierschenk; James R Wilson, "Method for Improving the Efficiency and Durability of Electrical Energy Storage using Solid Oxide Electrolysis Cell," US #9,945,039
13. Robert J Braun, Robert Kee, and Scott A Barnett, "High efficiency, reversible flow battery system for energy storage," US #8637197 B2

12. “Direct Hydrocarbon Fuel Cells” (continuation in part) US Patent # 7,709,124
11. “Direct Hydrocarbon Fuel Cells” (continuation in part) US Patent # 6,479,178
10. “Direct Hydrocarbon Fuel Cells” *US Patent* # 6,214,485
9. *“Ag-Perovskite Cermets for Thin Film Solid Oxide Fuel Cell Air Electrode Applications,” US Patent # 6,004,696*
8. "Multilayer Oxide Coatings", *US Patent* # 5,789,071
7. “Polycrystalline Superlattice Coated Substrate and Method and Apparatus for Making Same”, *US Patent* # 5,783,295
6. “Superhard Composite Materials Including Compounds of Carbon and Nitrogen Deposited on Metal and Metal Nitride, Carbide, and Carbon-Nitride” *US Patent* # 5,776,615
5. “Superhard Composite Materials Including Compounds of Carbon and Nitrogen Deposited on Metal and Metal Nitride, Carbide, and Carbon-Nitride” *US Patent* # 5,725,913
4. “Solid Oxide Fuel Cell Stack” *US Patent* # 5,770,327
3. “Solid Oxide Fuel Cells Having Dense Yttria-Stabilized Zirconia Electrolyte Films and Method of Depositing Electrolyte Films,” *US Patent* # 5,741,406
2. “Solid Oxide Fuel Cells Having Nickel and Yttria-stabilized Zirconia Anodes and Method of Manufacture” *US Patent* # 5,656,387
1. “A Thin Film Solid-Oxide fuel cell Deposited on Porous Alumina Using Reactive Magnetron Sputtering” *US Patent* # 5,395,704

Book Chapters or Articles:

52. SA Barnett, BK Park, R Scipioni, Effect of Infiltration on Performance of Ni-YSZ Fuel Electrodes, ECS Transactions 91, 1791-1797 2019
51. SL Zhang, H Wang, CX Li, CJ Li, SA Barnett, Effect of SrTi0. 3Fe0. 6Co0. 1O3 Infiltration on the Performance of LSM-YSZ Cathode Supported Solid Oxide Fuel Cells with Sr (Ti, Fe) O3 Anodes, ECS Transactions 91 (1), 2417-2424 2019
50. Hongqian Wang, Scott A. Barnett, Sr Surface Segregation on $La_{0.6}Sr_{0.4}Co_{0.2}Fe_{0.8}O_{3-\delta}$ Porous Solid Oxide Fuel Cell Cathodes, in "*Solid Oxide Fuel Cells 15 (SOFC-XV)"* edited by S.C. Singhal (ECS Transactions, Hollywood, FL, July 2017).
49. Q. Liu, H. Wang, D. Kennouche, C. Riscoe, D. Butts, S.A. Barnett, Life Testing of Ni-YSZ fuel electrodes under electrolysis, fuel cell, and current switching operation, in "*Solid Oxide Fuel Cells 15 (SOFC-XV)"* edited by S.C. Singhal (ECS Transactions, Hollywood, FL, July 2017).
48. D. Garcés [(1)], H. Wang, S.A. Barnett, A. G. Leyva, L.V. Mogni, PrLaBaCoO3 cathodes, Study of the Mechanisms of O_2-Reduction and Degradation Operating on $La_{0.5-x}Pr_xBa_{0.5}CoO_{3-\delta}$ Cathodes for SOFCs, in "*Solid Oxide Fuel Cells 15 (SOFC-XV)"* edited by S.C. Singhal (ECS Transactions, Hollywood, FL, July 2017).
47. Gareth A. Hughes, Justin Railsback, Danielle M. Butts, and Scott A. Barnett, “Electrochemical Performance of Solid Oxide Cell Oxygen Electrodes Under Pressurization,” in "*Solid Oxide Fuel Cells 14 (SOFC-XIV)"* edited by S.C. Singhal (ECS Transactions, Glasgow, 2015).
46. Miller, E. C., Sherman, Q., Gao, Z., Voorhees, P. W. & Barnett, S. A. “Stability of Infiltrated Nickel Anodes in Intermediate Temperature SOFCs,” in "*Solid Oxide Fuel Cells 14 (SOFC-XIV)"* edited by S.C. Singhal (ECS Transactions, Glasgow, 2015).

45. S.A. Barnett, "Solid Oxide Fuel Cells: Direct Hydrocarbon Type," in *Encyclopedia of Electrochemistry / High-Temperature Electrochemistry,* Springer, 2012.
44. M. Shah, P.W. Voorhees, and S.A. Barnett, "Stability and Performance of LSCF-infiltrated SOFC Cathodes: Effect of Nano-Particle Coarsening", in "*Solid Oxide Fuel Cells 12 (SOFC-XII),"* edited by S.C. Singhal (ECS Transactions, Montreal, Canada, 2011).
43. David Bierschenk, James Wilson, Elizabeth Miller, Emma Dutton, and Scott Barnett, "A Proposed Method for High Efficiency Electrical Energy Storage Using Solid Oxide Cells," in "*Solid Oxide Fuel Cells 12 (SOFC-XII),"* edited by S.C. Singhal (ECS Transactions, Montreal, Canada, 2011).
42. J. Scott Cronin, Kullachate Muangnapoh, Zach Patterson, Kyle Yakal-Kremski, Scott A. Barnett, Firing Temperature Effect On 3D Microstructure And Performance Of LSM-YSZ Composite SOFC Cathodes, in "*Solid Oxide Fuel Cells 12 (SOFC-XII),"* edited by S.C. Singhal (ECS Transactions, Montreal, Canada, 2011).
41. Ilwon Kim, Manoj Pillai, Tejas Shastry, Steffan Brown and Scott Barnett, Co-generation of Electricity and Syngas under Electrochemical Partial Oxidation using Novel SOFCs, in "*Solid Oxide Fuel Cells 11 (SOFC-XI)"* edited by S.C. Singhal (ECS Transactions, Vienna, Austria, 2009).
40. Jason D. Nicholas and Scott A. Barnett, "Effect of Infiltrate Solution Additives on Samarium Strontium Cobaltite-Cerium Gadolinium Oxide Nano-Composite SOFC Cathodes", in "*Solid Oxide Fuel Cells 11 (SOFC-XI)"* edited by S.C. Singhal (ECS Transactions, Vienna, Austria, 2009).
39. D. M. Bierschenk, J. M. Haag, K. R. Poeppelmeier, and S. A. Barnett, "Effect of Coal Syngas Fuel Composition on the Performance and Stability of Oxide Anodes", in "*Solid Oxide Fuel Cells 11 (SOFC-XI)"* edited by S.C. Singhal (ECS Transactions, Vienna, Austria, 2009).
38. James R. Wilson, J. Scott Cronin, Sherri Rukes, Anh Duong, Daniel Mumm, Scott Barnett, Analysis of LSM-YSZ Composite Cathode Phase Connectivity Using Three-Dimensional Reconstructions", in "*Solid Oxide Fuel Cells 11 (SOFC-XI)"* edited by S.C. Singhal (ECS Transactions, Vienna, Austria, 2009).
37. "Functional Nanoscale Ceramics for Energy Systems," MRS Proceedings Volume 1023E (2007 Spring MRS Symposium, San Francisco) Editors: E. Ivers-Tiffee, S. Barnett
36. Kim, I., Pillai, M.R. & Barnett, S.A., Liquid-Hydrocarbon Internal Reforming In Catalyst-Assisted SOFCs in *Solid Oxide Fuel Cells 10 (SOFC-X)*, K. Eguchi, Singhal, S.C., Yokokawa, H., Mizusaki, J., Editors. 2007, The Electrochemical Society: Nara, Japan. p. 815-822.
35. Madsen, B.D., Kobsiriphat, M., Marks, L.D., Wang, Y., Barnett, S.A., *SOFC Anode Performance Enhancement through Precipitation of Nanoscale Catalysts*, in *SOFC X*, K. Eguchi, Singhal, S.C., Yokokawa, H., Mizusaki, J., Editors. 2007, Electrochemical Society: Nara, Japan. p. 1339-1348.
34. Wilson, J.R., Kobsiriphat, W., Mendoza, R., Chen, H.-Y., Hines, T., Hiller, J.M., Miller, D.J., Thornton, K., Voorhees, P.W., Adler, S.B., Mumm, D. & Barnett, S.A., Three Dimensional Reconstruction of Solid Oxide Fuel Cell Electrodes Using Focused Ion Beam - Scanning Electron Microscopy in *Solid Oxide Fuel Cells 10 (SOFC-X)*, K. Eguchi, Singhal, S.C., Yokokawa, H., Mizusaki, J., Editors. 2007, The Electrochemical Society: Nara, Japan. p. 1879-1887.

33. Huayang Zhu, Andrew M. Colclasure, Robert J. Kee, Yuanbo Lin, Scott A. Barnett, "Tubular solid-oxide fuel cells using either anode recycle or barrier layers," Proceedings of the Sixth European SOFC Conference, Lucerne, Switzerland, June 2006
32. Madsen B.D. and Barnett S.A., The influence of NiO content on ceramic-based solid oxide fuel cell anodes, in Proc. 9th Int. Symp. on Solid Oxide Fuel Cells (Ed by Singhal S. C. and Mizusaki J.) 1185-1194 (Electrochemical Soc., Pennington, 2005).
31. Zhan Z, Lin Y.B., and Barnett S.A., Anode catalyst layers for direct hydrocarbon and internal reforming SOFCs, in Proc. 9th Int. Symp. on Solid Oxide Fuel Cells (Ed by Singhal S. C. and Mizusaki J.) 1321-1330 (Electrochemical Soc., Pennington, 2005).
30. Lai T.S., Pillai M., Kim I., Jiang Y., McDonald N., Mansourian N., Gostovic D., and Barnett S.A., Design and Fabrication of Segmented-in-Series Cells, in Proc. 9th Int. Symp. on Solid Oxide Fuel Cells (Ed by Singhal S. C. and Mizusaki J.) 333-343 (Electrochemical Soc., Pennington, 2005).
29. S.A. Barnett, "Direct Hydrocarbon Solid Oxide Fuel Cells," in Handbook of Fuel Cells, Ed. By W. Vielstich, A. Lamm, and H. Gasteiger, (Wiley, Hoboken NJ, 2003) Volume 4, p 1098-1108.
28. Z. Zhan, B.D. Madsen, J. Liu, and S.A. Barnett, "Propane Fueled Solid Oxide Fuel Cells," in Solid Oxide Fuel Cells VIII, Ed. By S.C. Singhal and M. Dokiya, (Electrochem. Soc., Pennington, NJ, 2003) p 1286-1294.
27. T.S. Lai, J. Liu, and S.A. Barnett, "Patterned Series-connected SOFCs," in Solid Oxide Fuel Cells VIII, Ed. By S.C. Singhal and M. Dokiya, (Electrochem. Soc., Pennington, NJ, 2003) p 1068-1076.
26. I. Ferguson, AG Thompson, S.A. Barnett, and ZC Feng, "Epitaxial Film Growth and Characterization", Handbook of Thin Film Devices, Volume 1: Hetero-structures for High Performance Devices, (Academic Press, New York, 2000) Chapter 1.
25. A. Madan and S.A. Barnett, "Fundamentals of Nitride-Based Superlattice Thin Films", Materials Science of Carbides, Nitrides, and Borides, Ed. By Y.G. Gogotsi, R.A. Andrievski, (1999), p. 187.
24. "Modification of Thin Film Growth Using Glancing-Angle Ions", S.A. Barnett, K.C. Ruthe, P.M. Deluca. Symposium L, Fundamental Mechanisms of Low-Energy-Beam-Modified Surface Growth and Processing. Edited by: E.H. Chason, R.M.V. Murty, T.D. Rubia, J.M.E. Harper. Vol. 585 (1999).
23. E.P. Murray and S.A. Barnett, "Improved Performance in (La,Sr)MnO_3 and (La,Sr)(Co,Fe)O_3 Cathodes by the Addition of a Gd-Doped Ceria Second Phase", SOFC VI Proceedings, Ed. By S.C. Singhal and M. Dokiya, Electrochem. Soc. p 369 (1999).
22. E.P. Murray and S.A. Barnett, "Operation of Low Temperature SOFCs on Pure Methane and Ethane Without Carbon Deposition", SOFC VI Proceedings, Ed. By S.C. Singhal and M. Dokiya, Electrochem. Soc. p 1001 (1999).
21. S.A. Barnett, A. Madan, and I.W. Kim, "Structure and Mechanical Poperties of Nitride-based Superlattices with Immiscible layers", Hard Coatings based on Borides, Carbides & Nitrides, TMS Proceedings, ed. by A. Kumar, Y.W. Chung, and R.W.J. Chia, pg. 189 (1998).
20. T. Tsai and S.A. Barnett, "LSM-YSZ Cathodes for Medium-Temperature Solid Oxide Fuel Cells," in U. Stimming, S.C. Singhal, H. Tagawa and W. Lehnert (Eds.), Proc. 5th Int. Symp. Solid Oxide Fuel Cells, The Electrochem. Soc., Pennington, NJ, 1997, p. 368

19. T. Tsai and S.A. Barnett, “Increased Solid Oxide Fuel Cell Power Density Using Interfacial Ceria Layers,” in U. Stimming, S.C. Singhal, H. Tagawa and W. Lehnert (Eds.), Proc. 5th Int. Symp. Solid Oxide Fuel Cells, The Electrochem. Soc., Pennington, NJ, 1997, p. 274.
18. S.A. Barnett and I.T. Ferguson, “An Introduction to Molecular Beam Epitaxy,” in Handbook of Thin Film Technology (IOP, New York, 1995).
17. X. Chu, M.S. Wong, W.D. Sproul, and S.A. Barnett, "Superhard Nanocomposite of Nitride Superlattices by Opposed-Cathod Unbalanced Magnetron Sputtering," in Nanophase and Nanocomposite Materials, Ed. by S. Komarneni, J.C. Parker, and G.J. Thomas (MRS, Pittsburgh, 1993).
16. L.S. Wang and S.A. Barnett, "Role of Electrode Interfacial Resistances in the Characteristics of Sputter-Deposited Medium-Temperature Solid Oxide Fuel Cells," in 3rd Int. Symp. Solid Oxide Fuel Cells, Ed. by S.C. Singhal and H. Iwahara, (Electrochem Soc., Pennington, 1993) p. 649.
15. S.A. Barnett, C.-H. Choi, R. Kaspi, and J. Mirecki-Millunchick, "Ion-Assisted Deposition of Thin Films," in Beam Processing of Advanced Materials, Ed. by J. Singh and S.M. Copley (TMS, Warrendale, 1993), p. 561.
14. K.S. Grabowski, S.A. Barnett, S.M. Rossnagel, and K. Wasa, Materials Modification by Energetic Atoms and Ions, Vol. 268 from MRS Symp. Proc. (MRS, Pittsburgh, 1992).
13. M. Shinn, P.B. Mirkarimi, and S.A. Barnett, "Heteroepitaxial Growth of Transition-Metal Nitride Films," in Mechanisms of Heteroepitaxial Growth, MRS Symp. Proc. Vol. 263, Ed. by M.S. Chisholm, R. Hull, L.J. Schowalter, and B.J. Garrison (MRS, Pittsburgh, 1992), p. 29.
12. M. Shinn, B.-S. Hong, and S.A. Barnett, "Superconductivity of DC Reactive Magnetron Sputtered Epitaxial TiN/NbN Superlattices," in Layered Superconductors: Fabrication, Properties and Applications, MRS Symp. Proc. Vol. 275, Ed. by D.T. Shaw, C.C. Tsuei, T.R. Schneider, and Y. Shiohara (MRS, Pittsburgh, 1992), p. 85.
11. S.A. Barnett, "Deposition and Mechanical Properties of Superlattice Thin Films," in Physics of Thin Films, Volume 17, Ed. by J.L. Vossen and M. Francombe (Academic, New York, 1993), Ch. 1.
10. S.A. Barnett, C.-H. Choi, and R. Kaspi, "Ion-Surface Interactions During Epitaxy," in Surface Chemistry and Beam-Solid Interactions, Ed. by H.A. Atwater, F.A. Houle, and D. Lowndes (MRS, Pittsburgh, 1991), p. 43.
9. C.-H. Choi and S.A. Barnett, "Ion Energy and Dose Effects during Ion-Assisted Epitaxial Growth of InAs on Si(100)," in Characterization and Processing of Materials Using Ion Beams, Ed. by L.E. Rehn, J.E. Greene, and F.A. Smidt, (Mater. Res. Soc., Pittsburgh, 1989), p. 689.
8. J.E. Greene, S.A. Barnett, J.-E. Sundgren, and A. Rockett, "Low-Energy Ion/Surface Interactions During Film Growth from the Vapor Phase: Effects on Nucleation and Growth Kinetics, Defect Structure, and Elemental Incorporation Probabilities," in Plasma/Surface Interactions and Materials Processing, Ed. by O. Auciello, A. Gras-Marti, and D.L. Flamm, (NATO Advanced Study Institute, 1989).
7. S.A. Barnett, A. Rockett, and R. Kaspi, "Monte Carlo Simulations of Molecular Beam Epitaxy on Si(001) Surfaces," in Silicon Molecular Beam Epitaxy, Ed. by J.C. Bean and L.J. Schowalter (Electrochem. Soc., Pennington, 1988) p. 438.

6. J.E. Greene, S.A. Barnett, J.-E. Sundgren, and A. Rockett, "The Role of Ion/Surface Interactions During Film Growth from the Vapor Phase," in Ion Beam Assisted Film Growth, Ed. by T. Itoh, (Elsevier, Tokyo, 1988), Ch. 5.
5. J.E. Sundgren, B. O. Johansson, A. Rockett, S. A. Barnett, and J. E. Greene, “TiN: A Review of the Present Understanding of the Atomic and Electronic Structure and Recent Results on the Growth and Physical Properties of Epitaxial TiN ($0.6 < x < 1.2$) Layers”, in Chemistry and Physics of Hard Coatings, AIP Series, Ed. by B. Sproul, J. E. Greene, and J. A. Thornton, (AIP Conf. Proc. No. 149, New York, 1986), p. 95.
4. J. E. Greene, S. A. Barnett, and D. Lubben, "Ion/Surface and Photon/Surface Interactions During Vapor Phase Crystal Growth", in Laser Chemical Processing of Semiconductor Devices, ed. by R. M. Osgood, R. A. Houle, and T. F. Deutsch, (North Holland Publishing Co., Amsterdam, 1984).
3. S. A. Barnett, B. Kramer, L. T. Romano, S. I. Shah, M. A. Ray, S. Fang, and J. E. Greene, "A Review of Recent Results in Single Crystal Metastable Semiconductors: Crystal Growth, Phase Stability, and Physical Properties", in Layered Structures, Epitaxy, and Interfaces, edited by J. M. Gibson and L. R. Dawson, North Holland Publishing Co., Amsterdam, 1985).
2. D. Lubben, S. A. Barnett, K. Suzuki, and J. E. Greene, "Primary and Secondary Ion Deposition of Epitaxial Semiconductor Films From Laser-Induced Plasmas," in Energy Beam-Solid Interactions and Transient Thermal Processing, ed. by J. C. C. Fan and N. M. Johnson, (North Holland Publishing Company, Amsterdam, 1985).
1. K. C. Cadien, M. A. Ray, S. M. Shin, J. M. Rigsbee, S. A. Barnett, and J. E. Greene, "Ion Mixing Effects During Film Deposition: Growth of Metastable Semiconducting and Metallic Alloys," in Metastable Materials Formation by Ion Implantation, ed. by S. T. Picraux and W. J. Choyke, (North Holland Publishing Co., Amsterdam, 1982).

Papers Accepted or Already Published:

263. Qinyuan Liu, Qian Zhang, Peter W. Voorhees, Scott A. Barnett, Effect of Direct-Current Operation On The Electrochemical Performance and Structural Evolution of Ni-YSZ Electrodes, Journal of Physics – Energy, in press.
262. T Zhu, H Troiani, LV Mogni, M Santaya, M Han, SA Barnett, Exsolution and electrochemistry in perovskite solid oxide fuel cell anodes: Role of stoichiometry in Sr (Ti, Fe, Ni) O3, Journal of Power Sources 439, 227077 2019
261. MY Lu, R Scipioni, BK Park, T Yang, YA Chart, SA Barnett, Mechanisms of PrO_x Performance Enhancement of Oxygen Electrodes for Low Temperature Solid Oxide Cells, Materials Today Energy, 2019 (in press)
260. J Railsback, SH Choi, SA Barnett, Effectiveness of dense Gd-doped ceria barrier layers for (La, Sr)(Co, Fe) O3 cathodes on Yttria-stabilized zirconia electrolytes, Solid State Ionics 335, 74-81 2019
259. SL Zhang, H Wang, MY Lu, CX Li, CJ Li, SA Barnett, Electrochemical performance and stability of SrTi0. 3Fe0. 6Co0. 1O3-δ infiltrated La0. 8Sr0. 2MnO3Zr0. 92Y0. 16O2-δ oxygen electrodes for intermediate-temperature solid oxide, Journal of Power Sources 426, 233-241 2019
258. SL Zhang, H Yang, BK Park, CX Li, CJ Li, SA Barnett, "High stability SrTi 1− x Fe x O 3− δ electrodes for oxygen reduction and oxygen evolution reactions," Journal of Materials Chemistry A 7 (37), 21447-21458 2019
257. BK Park, Q Zhang, PW Voorhees, SA Barnett, "Conditions for stable operation of solid oxide electrolysis cells: oxygen electrode effects," Energy & Environmental Science 2019
256. MY Lu, JG Railsback, H Wang, Q Liu, YA Chart, SL Zhang, SA Barnett, "Stable high current density operation of La 0.6 Sr 0.4 Co 0.2 Fe 0.8 O 3− δ oxygen electrodes," Journal of Materials Chemistry A 7 (22), 13531-13539 2019
255. J Railsback, SA Barnett, "Performance and stability of La2NiO4-infiltrated La0. 9Sr0. 1Ga0. 8Mg0. 2O3 oxygen electrodes during current switched life testing," Journal of Power Sources 395, 1-7, 2018
254. D. Garcés, H. Wang, S.A. Barnett, A.G. Leyva, F.R. Napolitano, R.O. Fuentes, H.E. Troiani and L.V. Mogni, "An insight into the electrochemical performance of La0.5−xPrxBa0.5CoO3−δ as cathodes for solid oxide fuel cells: study of the O2-reduction reaction," *Journal of Materials Chemistry A* **6** (2018) 16699 - 16709
253. Q. Liu, H. Wang, D. Kennouche, C. Riscoe, D. Butts and S.A. Barnett, "Effect of Reversing-Current Operation on the Structure and Electrochemical Performance Evolution of Ni-YSZ Fuel Electrodes," *Journal of The Electrochemical Society* **165** (2018) F870-F875
252. Zhu, T., Troiani, H. E., Mogni, L. V., Han, M. & Barnett, S. A. Ni-Substituted Sr(Ti,Fe)O 3 SOFC Anodes: Achieving High Performance via Metal Alloy Nanoparticle Exsolution. *Joule*, doi:10.1016/j.joule.2018.02.006 (2018).
251. Zhang, S.-L., Wang, H., Lu, M. Y., Zhang, A.-P., Mogni, L. V., Liu, Q., Li, C.-X., Li, C.-J. & Barnett, S. A. Cobalt-substituted SrTi0.3Fe0.7O3−δ: a stable high-performance oxygen electrode material for intermediate-temperature solid oxide electrochemical cells. *Energy & Environmental Science*, doi:10.1039/c8ee00449h (2018).

250. Yu, X., Chen, X., Buchholz, D. B., Barnett, S. A., Li, Q., Wu, J., Fenter, P., Bedzyk, M. J. & Dravid, V. P. Pulsed Laser Deposition and Characterization of Hetero-epitaxial LiMn2O4/La0.5Sr0.5CoO3 Bilayer Thin Films as Model Lithium Ion Battery Cathodes. *ACS Applied Nano Materials*, doi:10.1021/acsanm.7b00133 (2018).
249. Wang, H., Sumi, H. & Barnett, S. A. Effect of high-temperature ageing on (La,Sr)(Co,Fe)O 3-δ cathodes in microtubular solid oxide fuel cells. *Solid State Ionics* **323**, 85-91, doi:10.1016/j.ssi.2018.05.019 (2018).
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Invited Lectures

208. S. A. Barnett, S. L. Zhang, T. Zhu, M. Y. Lu (Northwestern University), and L. V. Mogni, "Titanate-Based Electrodes for Solid Oxide Cells," 236th Electrochemical Society meeting, Atlanta GA, October 12-17, 2019.

207. Scott A Barnett, High-Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells, West Virginia University, Department of Mechanical Engineering, August 30, 2019, Morgantown, WV

206. Scott A Barnett, "Electrochemical and Microstructural Studies of Degradation Mechanisms in Solid Oxide Cells," 235th Electrochemical Society meeting, Dallas, TX, May 26-30, 2019.
205. Scott A Barnett, "Perovskite Oxide Anodes For Solid Oxide Fuel Cells," Current Trends in SOFC Research: Bridging the Gap Between Fundamentals and Application, Vienna, Austria, February 11-12, 2019.
204. Scott A Barnett, "Performance and Stability of Ni-YSZ Fuel Electrodes," 16th Inter. Conf. On Advanced Ceramics and Composites, Daytona Beach, January 30, 2019
203. Scott A Barnett, "Perovskite Oxide Anodes For Solid Oxide Fuel Cells," Tel Aviv University, Department of Materials Science, January 16, 2019.
202. Scott A Barnett, Electrochemical Characteristics of Oxide Fuel Electrodes in Solid Oxide Fuel Cells, And The Effect of Catalyst Exsolution, Electrochemistry Workshop, Nov 12, 2018, Hamburg, Germany.
201. Scott A Barnett, Three Dimensional Tomography Studies of Li-ion Battery Electrodes, Lithium Battery Materials & Chemistries, Nov 2, 2018, Washington DC.
200. Scott A Barnett, High-Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells, Boston University, Materials Day 2018 - Novel Materials for Electrochemical Energy Conversion and Storage: Emerging Opportunities and Challenges, Oct 26, 2018, Boston, MA.
199. Scott A Barnett, Novel Titanate-Based Electrodes For Solid Oxide Fuel Cells With Improved Performance And Stability**,** MS&T Annual Symposium, October 17, 2018, Columbus, OH.
198. Scott A Barnett, High-Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells, Chinese Academy of Engineering, September 20, 2018, Shanghai, China
197. Qinyuan Liu and Scott A Barnett, 3D Tomography Studies of Fuel Cell and Battery Electrodes, at Automotive Innovation Summit, Sept 20, 2018, Detroit, MI.
196. Scott A Barnett, High-Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells, China University of Mining and Technology, Department of Materials Science, August 2, 2018, Beijing, China
195. Scott A Barnett, High-Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells, Tianjin University, Department of Materials Science, August 3, 2018, Tianjin, China
194. Scott A. Barnett, Shan-lin Zhang, Tenglong Zhu, and Liliana Mogni, Novel Titanate-Based Electrodes for Solid Oxide Cells, Asian Solid State Ionics Conference, Shanghai, August 6, 2018
193. Scott A Barnett, Electrochemical Conversion of CO2 In Solid Oxide Cells Utilizing Nano-Scale Electrodes, 15th Inter. Conf. On Advanced Ceramics and Composites, Daytona Beach, January 25, 2018
192. Scott A Barnett, Perovskite Oxide Materials For Solid Oxide Fuel Cell Anodes, 15th Inter. Conf. On Advanced Ceramics and Composites, Daytona Beach, January 25, 2018
191. Scott A Barnett, Tenglong Zhu, Liliana Mogni, Horacio Troiani, Microstructural and Electrochemical Studies of Solid Oxide Fuel Cell Anodes Formed by in situ Catalyst Exsolution, Solid State Ionics, June 2017, Padua, Italy.
190. Scott A Barnett, Zhan Gao, Hongqian Sharon Wang, Fabrication of Solid Oxide Fuel Cells Utilizing Reduced-Temperature Firing, American Ceramic Society PACRIM Conference, Kona Hawaii, May 2017

189. Scott A Barnett, "High Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells," Colloquium at Florida International University, March 24, 2017
188. Scott A Barnett, Degradation Mechanisms in Reversible Solid Oxide Cells, Electrochemical Society Bi-Annual Symposium, Honolulu, October 2, 2016
187. Scott A Barnett, 3D Imaging of Electrochemical Energy Device Electrodes, 2nd Northwestern University – Tel-Aviv University Workshop, Evanston, IL, Sept 20, 2016
186. Scott A Barnett, High-Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells, University of South Carolina, Columbia, SC, September 1, 2016
185. Scott A Barnett, Imaging of Fuel Cell and Battery Electrodes Using Focused Ion Beam Scanning Electron Microscopy, Microscopy & Microanalysis, Columbus, OH, July 27, 2016
184. Scott Barnett, Justin Railsback, Matthew Lu, "Performance and Durability of Reversible Solid Oxide Cells for Grid-Scale Energy Storarge," TSRC Workshop on High Temperature Energy Conversion: Electrochemical Oxidation and Reduction Mechanisms, Telluride, CO, June 29, 2016
183. Scott A Barnett, "Tutorial on solid oxide cells," Joint US-Africa Materials Institute, Arusha, Tanzania, June 9, 2016
182. D. Kennouche, Y. C. K. Chen-Wiegart, K. J. Yakal-Kremski, J. Wang, J. Gibbs, S. A. Barnett, and P. W. Voorhees, The Stability of Solid Oxide Fuel Cells: Insights through in Situ X-Ray Tomography, Electrochemical Society Bi-Annual Symposium, San Diego, May 30, 2016
181. Scott Barnett, David Kennouche, Hongqian Wang, Three dimensional microstructure measurements of SOFCs: electrode microstructural evolution and long-term durability, Electrochemical Society Bi-Annual Symposium, San Diego, May 29, 2016
180. Three Dimensional Imaging of Battery Electrodes, ONR Program Review, Washington DC, April 21, 2016
179. High-Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells, Centro Atomico Bariloche Lecture Series, Bariloche, Argentina, February 4, 2016
178. Scott A Barnett and Ramille Shah, 3D printing of SOFCs, JPL, Pasadena, CA, November 9, 2015
177. Scott A Barnett, "Degradation mechanisms in solid oxide cells during electrolysis operation," University of Sheffield, England, July 2015
176. Hughes, G. A., Railsback, J. G., Yakal-Kremski, K. J., Butts, D. M. & Barnett, S. A., Degradation of (La0.8Sr0.2)0.98MnO3-δ - Zr0.84Y0.16O2-γ Composite Electrodes During Reversing Current Operation. *Faraday Discussions*, York, England, July 2015.
175. Keynote lecture: Performance and Durability of Solid Oxide Cells For Energy Storage, Electrochemical Society Symposium, Chicago, May 25, 2015.
174. High-Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells, Argonne National Labs, May 21, 2015
173. Scott A Barnett, "Degradation mechanisms in solid oxide cells during electrolysis operation," Manufacturing of Green Fuels from Renewable Energy" Roskilde, Denmark, April 14-16 2015
172. Degradation mechanisms in solid oxide cell electrodes during electrolysis, Seoul National University, February, 2015.
171. Keynote lecture, Three-dimensional measurements of electrode microstructure: correlation with electrochemical performance and degradation, MCARE (American Ceramic Society), Jeju, Korea, February 2015.

170. Three-dimensional measurements of electrode microstructure: correlation with electrochemical performance and degradation, Advanced Institute of Science and Technology (AIST), Nagoya, Japan, February 2015.
169. Scott A Barnett, High Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells, Kyushu University, Japan, February, 2015.
168. Scott A Barnett, High Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells, Int Conf. Advanced Ceramics and Composites, Daytona Beach, Jan. 26, 2015.
167. Scott A Barnett, High Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells, Chemeca, Perth, Australia, September, 2014.
166. Scott A Barnett, High-Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells, Exxon-Mobil Research Labs, Clinton, NJ 2014
165. Scott A Barnett, High-Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells, DuPont Research Labs, Wilmington, September 2014
164. Scott A Barnett, High-Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells, General Electric Research, Niskayuna, August 2014
163. Scott A Barnett, High-Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells, Schlumberger, Boston, August 2014
162. Scott A Barnett, High-Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells, Materials Horizons Workshop, Northwestern University, July 2014
161. Scott A Barnett, Kyle Yakal-Kremski, David Kennouche, Three-dimensional measurements of electrode microstructure: correlation with electrochemical performance and degradation, Electroceramics Workshop, KAUST, Saudi Arabia, March 25, 2014
160. Scott Barnett, Kyle Yakal-Kremski, and David Kennouche, Observing electrode microstructure evolution and electrochemical degradation in solid oxide fuel cells**,** American Chemical Society Symposium, Dallas, March 17, 2014
159. Scott A Barnett and Zhao Liu, Three-dimensional imaging and simulation of Li-ion battery electrodes, Denmark Battery Society Workshop, Lyngby, Denmark, February 28, 2014
158. Scott A Barnett, High Efficiency Electrical Energy Storage Using Regenerative Solid Oxide Cells, Linkøping University, Sweden, February 25, 2014
157. Scott A Barnett, Nano-Scale Electrodes for Novel Solid Oxide Cells, THERMEC, Las Vegas, Dec 4, 2013
156. Scott A Barnett, "Stability of Solid Oxide Fuel Cell Electrodes and Strained Epitaxial Thin Films" Materials Science & Technology 2013, Montreal, Canada, November 29, 2013
155. Scott A Barnett, Gareth Hughes, and Zhan Gao, "High Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells" Materials Science & Technology 2013, Montreal, Canada, November 29, 2013
154. Scott A Barnett, High Efficiency Electrical Energy Storage Using Regenerative Solid Oxide Cells, University of Delaware, Oct 18, 2013
153. Scott Barnett, David Bierschenk, Gareth Hughes, Kyle Yakal-Kremski, Zhan Gao, Elizabeth Miller, Zhongliang Zhan, “High Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells,” IUMRS, September, 2013
152. Scott A Barnett, “Three-dimensional measurements of electrode microstructure: correlation with electrochemical performance and degradation,” Ulsan, South Korea, August 2013
151. Scott Barnett, Scott Cronin, Kyle Yakal-Kremski, and David Kennouche, “Three-dimensional measurements of electrode microstructure: correlation with electrochemical

performance and degradation, Solid State Electrochemistry Workshop, July, 2013 Heidelberg, Germany
150. Scott A Barnett, "Nano-Scale Electrodes for Novel Solid Oxide Cells**,"** Technical University of Denmark, Risø campus, June, 2013
149. Scott A Barnett, "Nano-Scale Electrodes for Novel Solid Oxide Cells**,"** College du France, Paris, France, June, 2013
148. S.A. Barnett, "Potential Performance of SOEC," Workshop on Electrolysis and CO2-recycling for production of green fuels, April 2013, Risø.
147. Scott Barnett, Scott Cronin, Kyle Yakal-Kremski, David Kennouche, Zhao Liu, "Three-dimensional measurements and simulations of electrode microstructure: correlation with electrochemical performance and degradation", TMS Symposium, March 2013, San Antonio
146. S.A. Barnett, "High Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells", colloquium at Illinois Inst of Technology, February 13, 2013
145. Scott A. Barnett, J Scott Cronin, Kyle Yakal-Kremski, David Kennouche, "Three-Dimensional Characterization of Solid Oxide Fuel Cell Microstructure: Correlation With Electrochemical Performance and Degradation," ICACC conference, Daytona Beach, January 2013
144. S.A. Barnett, "A Novel Solid Oxide Flow Battery Utilizing H-C-O Chemistry," GCEP Symposium, Stanford University, October 10-11, 2012
143. S.A. Barnett, lectures at the 2012 ICMR Summer School: INORGANIC MATERIALS FOR ENERGY CONVERSION AND STORAGE, Santa Barbara, August, 2012
142. S.A. Barnett, "Studies of Solid Oxide Fuel Cell Electrode Evolution Using 3D Tomography", lecture at Karlsruhe University, Karlsruhe, Germany, July, 2012
141. (plenary) S.A. Barnett, "Studies of Solid Oxide Fuel Cell Electrode Evolution Using 3D Tomography" European Fuel Cell Forum, Lucerne, Switzerland, June 2012
140. S.A. Barnett, "High Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells," colloquium at Lehigh University, Chemical Engineering Dept., March 2012
139. Scott Barnett, James Wilson, Scott Cronin, Kyle Yakal-Kremski, "Measurements of solid oxide fuel cell electrode microstructure and correlation with electrochemical performance and degradation," January, 2012, Brookhaven National Lab
138. Scott Barnett, James Wilson, Scott Cronin, Kyle Yakal-Kremski, Three-dimensional measurements of electrode microstructure and correlation with electrochemical performance and degradation, Feb. 1, 2012, Korea Institute of Science and Technology
137. S. A. Barnett, Z. Zhan, D. M. Bierschenk, "Reduced-Temperature Solid Oxide Cells For Efficient Energy Storage," 2nd International Symposium on Advanced Materials for Humantronics, Feb. 3, 2012, Yonsei University
136. S.A. Barnett, "Microstructural And Electrochemical Studies of Solid Oxide Fuel Cell Durability" Fall Materials Research Society Meeting, Boston, December, 2011.
135. Z. Zhan D. M. Bierschenk, J. S. Cronin and S. A. Barnett, "Nanostructured Electrodes for Reversible, Low Temperature Solid Oxide Cells," Electrochemical Society Fall 2011 Conference, Boston, October, 2011
134. Scott A. Barnett, David M. Bierschenk, and Elizabeth Miller, "A Reversible Solid Oxide Cell Chemistry Enabling High-Efficiency Electrical Energy Storage," E-MRS 2011 Spring & Bilateral Meeting, Nice (France), May 9-13, 2011.
133. S.A. Barnett, "Novel Anode Materials For Solid Oxide Fuel Cells," invited talk at Beijing Institute of Technology, China, March 25, 2011.

132. S.A. Barnett, “Operation of Solid Oxide Fuel Cells With Methane and Natural Gas,” invited talk at Harbin Institute of Technology, China, March 23, 2011.
131. S.A. Barnett, “Electrodes For Reduced-Temperature Solid Oxide Fuel Cells,” invited talk at Shanghai Institute of Ceramics, China, March 21, 2011
130. S.A. Barnett, “Overview of Solid Oxide Fuel Cell Activities at Northwestern University,” invited talk at St. Gobain Industries, Boston, MA, January 28, 2011
129. S.A. Barnett, “Measurements Of SOFC Electrode Microstructure: Correlation With Electrochemical Performance & Degradation,” invited talk at St. Gobain Industries, Boston, MA, January 28, 2011
128. S.A. Barnett and David Biershenck, “A Novel Reversible Solid Oxide Cell Chemistry Enabling High-Efficiency Electrical Energy Storage,” International Battery Association and Pacific Power Source Symposium, Kona, Hawaii, January 11-14 2011
127. Scott Barnett and David Bierschenk, “High Efficiency Electrical Energy Storage Using Reversible Solid Oxide Fuel Cells”, Physics Colloquium, University of Texas San Antonio, November 19, 2010
126. Scott Barnett, James Wilson, Scott Cronin, and Kyle Yakal-Kremski, “Recent Results on 3D Reconstruction of SOFC Electrodes,” Solid Oxide Cell Electrodes In 3D Workshop, Riso National Labs, Roskilde, Denmark, July 6, 2010
125. James Wilson, Scott Barnett, Scott Cronin, and Kyle Yakal-Kremski, “A Discussion of Segmentation and Data Analysis Methods For 3D Reconstruction of SOFC Electrodes,” Solid Oxide Cell Electrodes In 3D Workshop, Riso National Labs, Roskilde, Denmark, July 6, 2010
124. Scott Barnett, James Wilson, Scott Cronin, and Megna Shah, “Measurements of solid oxide fuel cell electrode microstructure and correlation with electrochemical performance and degradation,” Invited lecture at Riso National Laboratory, Roskilde, Denmark, June 22, 2010
123. Scott Barnett, James Wilson, Scott Cronin, and Jason Nicholas, “Three-dimensional measurements of SOFC electrode microstructure and correlation with electrochemical performance,” CIMTEC Conference, Montecatini Terme, Italy, June 9, 2010
122. S.A. Barnett, “SOFC electrode structure, performance, and degradation studies using FIB-SEM-based 3D tomography,” Invited lecture at the NEDO project on Fuel Cell Durability, Kyoto, Japan, April 21, 2010
121. S.A. Barnett, “SOFC electrode structure, performance, and degradation studies using FIB-SEM-based 3D tomography,” Invited lecture at the SOFC Society of Japan, Tokyo, April 19, 2010
120. S.A. Barnett, D. Bierschenk, “Anode materials and designs for fuel-flexible solid oxide fuel cells,” invited talk at the American Chemical Society Annual Meeting, San Francisco, March, 24, 2010
119. S.A. Barnett, J.R. Wilson, J.S. Cronin, and S. Harris, “Three dimensional imaging of battery positive electrodes using focused ion beam – scanning electron microscopy,” International Battery Association and Pacific Power Source Symposium, Kona, Hawaii, January 12-15 2010
118. S.A. Barnett and J.R. Wilson, “On the applicability of solid oxide electrochemical cells for energy storage,” International Battery Association and Pacific Power Source Symposium, Kona, Hawaii, January 12-15 2010
117. James Wilson, Scott Barnett, and Scott Cronin “Quantitative 3D Analysis of SOFC Electrode Microstructure Using FIB-SEM,” Lecture at Riso National Labs, Roskilde, Denmark, October 12, 2009

116. Scott Barnett, James Wilson, and Scott Cronin, “Three dimensional structural measurements on SOFC electrodes,” invited lecture at ETH Zurich, Oct 2, 2009
115. Scott Barnett, James Wilson, and Scott Cronin, “Three dimensional structural measurements on SOFC electrodes,” invited talk at Solid Oxide Fuel Cells Canada Annual Meeting, June 24, 2009
114. Scott Barnett, James Wilson, and Scott Cronin, “The Role of Solid Oxide Fuel Cell Microstructure In Determining Electrode Polarization Resistance,” invited talk at American Ceramic Society PACRIM Meeting, Vancouver, BC, June 3, 2009
113. Scott Barnett, March 11, 2009, Invited lecture for NEDO project “Advanced Ceramic Reactors”
112. Scott Barnett, March 5, 2009, invited lectures at Nanyang Technical University, Singapore
111. Scott A Barnett, James Wilson, and Scott Cronin, “The Role of Solid Oxide Fuel Cell Microstructure In Determining Electrode Polarization Resistance,” Electrochemistry Conference, February 10, 2009, Playa Del Carmen, Mexico
110. Scott A. Barnett and James Wilson, “Studies Of SOFC Electrode Microstructure By Focused Ion Beam – Scanning Electron Microscopy,” November 11, 2008, invited talk at CMCEE conference, Shanghai, China
109. Scott A. Barnett, Solid Oxide Fuel Cells: New Materials and Measurements, West Virginia University, July, 2008.
108. Scott A. Barnett, Fuel Cells, presented at the NSF Summer Institute on Energy Challenge and Nanotechnology, June 23 – 26, 2008, Northwestern University
107. Scott A Barnett, Nano-Layered Hard Coatings, ICMCTF, San Diego, CA, April 29, 2008
106. Scott A. Barnett, Electrode Materials For Solid Oxide Fuel Cells, Purdue Symposium on Energy, West Lafayette, IN, April 24, 2008
105. Scott A. Barnett, Novel Measurements and Structures of Solid Oxide Fuel Cells, Versa Power Systems, Calgary, AB, April 14, 2008
104. Scott A. Barnett, Solid Oxide Fuel Cells: New Materials and Measurements, University of Calgary, Calgary, AB, April 11, 2008
103. Scott A. Barnett, Solid Oxide Fuel Cells: New Materials, Measurements, and Applications, University of Connecticut, March 3, 2008
102. Scott A. Barnett, Solid Oxide Fuel Cells: New Materials, Measurements, and Applications, Lawrence Berkeley Labs, CA August 17, 2007
101. Scott A. Barnett, Three-Dimensional Analysis of Solid Oxide Fuel Cells Using Focused Ion Beam – Scanning Electron Microscopy, Microscopy and Microanalysis 2007 Conference, Fort Lauderdale, FL, August, 2007
100. Scott A. Barnett, Solid Oxide Fuel Cells: New Materials, Designs, and Applications, Shanghai Institute of Ceramics, Shanghai, China, June, 2007
99. Scott A. Barnett, Solid Oxide Fuel Cells: New Materials, Designs, and Applications, Harbin Institute of Technology, Harbin, China, June, 2007
98. Scott A. Barnett, Solid Oxide Fuel Cells: New Materials, Designs, and Applications, Beijing Mineral University, Beijing, China, June, 2007
97. Scott A. Barnett, Solid Oxide Fuel Cells: New Materials, Designs, and Applications, South China Institute of Technology, Guanjzhou, China, June, 2007

96. Scott A. Barnett, “Applications of Nanomaterials to Hard Protective Coatings and Solid Oxide Fuel Cells” Tutorials in Nanotechnology: Focus on High Temperature Materials, Electrochemical Society Spring Meeting, Chicago, IL, May 2007.

95. Scott A. Barnett, “Formation of Nanometer-Scale Electro-Catalyst Particles in Novel Solid Oxide Fuel Cell Anodes” Spring 2007 MRS Meeting, San Francisco, CA, April 2007.

94. Scott A. Barnett, “Hydrocarbon reforming processes internal to solid oxide fuel cells” Hydrocarbon Resources Gordon Conference, Ventura, CA, January 2007

93. Scott A. Barnett, “Microstructural Requirements for Solid Oxide Fuel Cells,” Materials Science & Technology Conference, Cincinnati, OH, October, 2006.

92. Scott A. Barnett, “Energy Applications of Solid Oxide Fuel Cells, Northwestern University Center for Catalysis and Surface Science - Annual Meeting, Evanston, IL, August, 2006.

91. Scott A. Barnett, “Energy Applications of Solid Oxide Fuel Cells,” 2006 Taiwan – Midwest-USA Symposium on Science and Engineering, Evanston, IL, June, 2006.

90. Scott A. Barnett, “Can Fuel Cells Help Us Achieve a Sustainable Energy Future?” Northwestern University Domain Dinner, April, 2006.

89. Scott A Barnett, “Solid Oxide Fuel Cells: New Materials and New Applications,” Montana State University, Bozeman, Mt, March, 2006.

88. Scott A. Barnett, “Solid Oxide Fuel Cells: New Materials and New Energy Alternatives,” Carnegie-Mellon University, Dept. of Materials Science colloquium, December 2005.

87. Scott A. Barnett, “Solid Oxide Fuel Cells and the Hydrogen Economy,” Colorado School of Mines, School of Engineering colloquium, December 2005.

86. S.A. Barnett,“Segmented-in-series solid oxide fuel cells” Corning Inc., Corning, NY August 2005.

85. S.A. Barnett,“Hydrocarbon-fueled solid oxide fuel cells” Franklin Fuel Cells, Philadelphia, August 2005

84. S.A. Barnett, “Applications of Hydrocarbon Solid Oxide Fuel Cells,” Solid State Ionics Conference, Baden-Baden, Germany, July 2005.

83. S.A. Barnett, "Glancing angle ion beam as a tool for manipulating and measuring diffusion and thin film growth," Workshop on Ions at Surfaces: Patterns and Processes, Bonn, Germany, June, 2005.

82. S.A. Barnett, “Hydrocarbon Solid Oxide Fuel Cells for Portable Power and Other Applications,” American Ceramics Society Symposium, Baltimore, April, 2005.

81. S.A. Barnett, “Mechanisms of Structurally and Chemically Mismatched Epitaxy, American Ceramics Society Symposium, Baltimore, April, 2005.

80. S.A. Barnett and D. Cohen, “Modulation-Doped Transparent Conductors,” 4th International Symposium on Transparent Oxide Thin Films for Electronics and Optics, Tokyo, April 2005

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77. S.A. Barnett, A. Madan, I. Kim, “Stability of Nano-Layered Hard Coatings,” International Conference on Metallurgical Coatings and Thin Films, San Diego, April 2004

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75. Electrode Efffects in Low Temperature Solid Oxide Fuel Cells, University of Connecticut Global Fuel Cell Center, December, 2003

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73. S.A. Barnett and J. Liu, "Solid Oxide Fuel Cell Electrode Materials," American Ceramic Society Conference, Nashville, TN, April, 2003.

72. S.A. Barnett, "Low Temperature Thin Electrolyte Solid Oxide Fuel Cells," University of Washington, March, 2003.

71. S.A. Barnett, "Anode Materials for Direct Methane and Propane Utilization," US/ESF Workshop on Advanced Anodes for High Temperature Fuel Cells, Strasbourg, France, December, 2002.

70. S.A. Barnett, J. Liu, B.D. Madsen, and Z. Zhan, "Direct Hydrocarbon Solid Oxide Fuel Cells," 202nd Electrochemical Society Meeting, Salt Lake City, Utah, October, 2002.

69. "Nanotechnology Research at Northwestern," United Technologies Research Center, Hartfort, CT, July, 2002.

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67. "Operation of anode supported SOFCs on methane and natural gas," DOE SECA Core Technology Review, Pittsburgh, PA, June, 2002.

66. "Thermal Stability and Mechanical Properties of Nanolayered Wear-Resistive Coatings," Society of Vacuum Coaters Meeting, Orlando, FL, April, 2002.

65. "Real time monitoring and modification of epitaxial growth using glancing-angle ions," University of Michigan, Ann Arbor, MI, October, 2001.

64. S.A. Barnett, "Recent Progress in Low-Temperature Solid Oxide Fuel Cells" Materials for Fuel Cells Meeting, Irvine, CA, August, 2001

63. S.A. Barnett, "Low-Temperature Thin-Electrolyte Solid Oxide Fuel Cells," Fuel Cell Gordon Conference, August, 2001

62. S.A. Barnett, Structure, Stability, and Mechanical Properties of Metal/Nitride Superlattices," 52nd Pacific Coast Meeting of the American Ceramic Society, San Francisco, September 2000.

61. Scott Barnett, Erica Perry Murray, and Tsepin Tsai, "Low-Temperature Thin-Electrolyte Solid Oxide Fuel Cells," The Electrochemical Society Chicago Chapter Meeting, Tuesday, June 13, 2000

60. "Low-Temperature Thin-electrolyte Solid Oxide Fuel Cells", Uppsala University, Sweden, February 2000.

59. "Quantitative Real Time Studies of Epitaxial Growth Using Glancing-Angle Ions", Twelfth American Conference on Crystal Growth & Epitaxy. Vail, Co. August 2000.

58. "The Effect of Different Interfaces on MOCVD III/AsSb Optical Properties & Device Performance", 2000 Electronic Materials Conference. University of Denver, Denver, Co. June 2000.

57. "Structure, Stability, and Mechanical Properties of Metal/Nitride Superlattices", Spring 2000 MRS Meeting. San Francisco, Ca. April 2000.

56. "Low-Temperature Thin-electrolyte Solid Oxide Fuel Cells", UC Davis, January 2000.

55. "Glancing-Angle Ion-Assisted Molecular Beam Epitaxy", Materials Research Society Fall Meeting, December 1999.
54. "Deposition, Structure, and Mechanical Properties of Nitride-Based Superlattice Thin Films", University of Illinois Urbana, Materials Science, November 1999.
53. "Real-Time Characterization of Epitaxial Growth Using Glancing-Angle Ions," Intl. Conf. Thin Films, Cancun, Mexico, September 1999.
52. S.A. Barnett, P. DeLuca, and K. Ruthe, "Real-Time Characterization of Epitaxial Growth Using Glancing-Angle Ions," Intl. Conf. Thin Films, Cancun, Mexico, September 1999.
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50. S.A. Barnett, A. Madan, P. Yashar, and I. Kim, "Deposition, Structure, and Properties of Superlattice Thin Films", 45th AVS International Symposium, Boston, November 1998.
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48. S.A. Barnett, A. Madan, I. Kim, and P. Yashar, "Reactive Sputtering of Nanometer-Scale Multilayer Coatings," Int. Conf. Metallurgical Coatings and Thin Films, San Diego, April, 1998.
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46. S.A. Barnett, "Biaxially-Oriented Ceramic Buffer Layers", Wright Labs, Dayton, October 1997.
45. S. A. Barnett, A. Madan, I. Kim, and P. Yashar, "Deposition and mechanical properties of nitride-based superlattices", Los Alamos Lab, July 8 1997.
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43. J.G.C. Labanda and S.A. Barnett, "Glancing-Angle Ion Bombardment for Modification and Monitoring of Semiconductor surfaces", TMS meeting, February 12, 1997.
42. S.A. Barnett, "Mechanical Properties of Nitride Superlattices", Materials Science Seminar at Johns Hopkins University, Baltimore, February 14, 1996.
41. S.A. Barnett, "Deposition and Mechanical Properties of Nitride Superlattice Thin Films," International Conference on Mechanical Properties of Interfacial Materials, Kona, January 16, 1996.
40. S.A. Barnett, "Hardness Enhancements in Transition-Metal Nitride Superlattice Thin Films," Sandvik Coromat AB, Stockholm, June,1995.
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38. Xi Chu and S.A. Barnett, "A Model for Hardness Enhancements in Superlattice Thin Films," Workshop on Nanoscale Layered Materials for Protective Coating and Structural Applications," Gaithersburg, August, 1995.
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35. J. Mirecki-Millunchick, J.G. Labanda, S.A. Barnett, and L. Hultman, "Novel Applications of Low-Energy Ions in Molecular Beam Epitaxy of III-V Semiconductors", SPIE Symp. on Lasers and Optoelectronics, San Jose, February, 1995.
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31. S.A. Barnett, "Thin-Film Solid Oxide Fuel Cells," Argonne National Laboratory, October, 1993.
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25. S.A. Barnett, "Multilayer Thin Films for Enhanced Mechanical and Tribological Properties", 39th Annual American Vacuum Society Symp., Chicago, November, 1992
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23. S.A. Barnett, "Sputter Deposition of Yttria-Stabilized Zirconia Electrolytes and Silver Cermet Electrodes for SOFC Applications," Ceramic Conductors for Solid State Electrochemical Devices, Snowbird, Utah, May 1991.
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