A List of Publications by Dr. Kevin Huang
(* indicates corresponding author)

I. Books and Book Chapter


II. Patents

Issued:


**Pending:**


19. K. Huang, *Direct Carbon Fuel Cells With Mixed Oxide Ion And Carbonate Ion Electrolytes*, USCRF, PPA857, filed on July 13, 2010


22. K. Huang and X. Liang, *Stable and Active Intermediate-Temperature Solid Oxide Fuel Cell Cathodes Achieved by Atomic Layer Deposition*, USCRF#993, USPO provisional application, serial number 61/907,576, filed on November 26, 2012, not filed


### III. Peer Reviewed Journal Papers


17. Peng Zhang, Jingjing Tong, and Kevin Huang*, “Combining electrochemical CO\textsubscript{2} capture with catalytic dry methane reforming in a single reactor for low-cost syngas production”, ACS Sustainable Chemistry and Engineering, DOI: 10.1021/acssuschemeng.6b01960.


20. Youngseok Jee, Po-Hsiu Chien, Esteban Villarreal, Yan-Yan Hu and Kevin Huang, “Crystallization of amorphous Na\textsubscript{2}Si\textsubscript{2}O\textsubscript{5} as a Na-ion conductor”, Solid State Ionics, 296 63-70 (2016). 10.1016/j.ssi.2016.09.005

21. Shan-Lin Zhang, Chang-Jiu Li, Cheng-Xin Li, Guan-Jun Yang, Kevin Huang, Meilin Liu, “Liquid plasma sprayed nano-network La\textsubscript{0.4}Sr\textsubscript{0.6}Co\textsubscript{0.2}Fe\textsubscript{0.8}O\textsubscript{3}/Ce\textsubscript{0.8}Gd\textsubscript{0.2}O\textsubscript{2} composite as a high-performance cathode for intermediate-temperature solid oxide fuel cells”, Journal of Power Sources, 2016, 327, 622–628

22. P. Zhang, J. Tong, Y. Jee and K. Huang, “Stabilizing the High-temperature Electrochemical Silver-Carbonate CO\textsubscript{2} Capture Membrane with Atomic Layer
Deposition of ZrO₂ Overcoat”, *Chemical Communications*, 2016, 52, 9817-9820, DOI: 10.1039/C6CC04501D


60. T. Wei, P. Singh, J. B. Goodenough, K. Huang*, “Sr3-3xNa3xSi3O9-1.5x (x=0.45) as a Superior Solid Oxide-ion Electrolyte for Intermediate-temperature Solid Oxide Fuel Cells”, Energy & Environmental Science, Vol.7 (2014), 1680.


63. Y. Gong, X. Li, L. Zhang, C. Qin, W. Tharp, K. Huang*, “Promoting Electrocatalytic Activity of a Composite SOFC Cathode La0.8Sr0.2MnO3/Gd0.2Ce0.8O2 with Molten Carbonates”, Journal of Electrochemical Society, Vol. 161 (3) (2014) F226-F232


79. Q. Tang, G. Qian, K. Huang*, “Hydrophobic hydrogels caged H$_3$PO$_4$ as a New Class of High-Temperature Proton Exchange Membranes with Excellent Acid Retention”, RSC Advances, Vol.3 (2013), 3520-3525


81. X. Zhao, N. Xu, X. Li, Y. Gong, K. Huang*, "Solid oxide iron-air rechargeable battery-a new energy storage mechanism", ECS Transactions, Vol.50 (45) (2013) 115-123


83. Q. Tang, G. Qian, K. Huang*, “H$_3$PO$_4$-Imbibed Three-Dimensional Polyacrylamide/Polyacrylamide Hydrogel as a High-Temperature Proton Exchange Membrane with Excellent Acid Retention”, RSC Advances, Vol.2 (2012), 10238-10244.


90. X. Zhao, X. Li, N. Xu, K. Huang*, “Beneficial Effects of Mg-Excess in La$_{1-x}$Sr$_x$Ga$_{1.3}$Mg$_{y+z}$O$_3$-δ as Solid Electrolyte”, *Solid State Ionics*, Vol 214 (2012), 56-61.


100. L. Zhang, Xue Li, Siwei Wang, Kevin Gregory Romito, Kevin Huang*, “Synthesis of mixed oxide ion and carbonate ion conductors supported by a


105. X. Li, N. Xu, L. Zhang, K. Huang*, “Combining proton conductor BaZr0.8Y0.2O3-δ with carbonate: Promoted densification and enhanced proton conductivity”, *Electrochemistry Communications*, Vol 13 (7) (2011) 694-697.


**Invited Presentations at Professional Meetings**


2. Invited speaker at MS&T2015, “Mixed conductors for efficient and selective carbon capture”, Columbus, OH, October 4-8, 2015


4. Invited speaker at TMS 2015 annual meeting, “Advanced Energy Storage through SOFC”, March 17, 2015, Orlando, USA

5. Invited speaker at MRS 2014, “A Novel Solid Oxide Metal-air Redox Battery”, November 4, 2014, Boston, USA


7. Invited speaker, “Enhancing the performance of solid oxide metal-air redox battery with nanostructured multivalent chemical bed”, February 16-20, 2014, San Diego, USA


10. Invited speaker, “Solid Oxide Metal-air Redox Battery - a New Mechanism for Advanced Energy Storage”, PacRim 10 Conference, June 3-7, 2013, San Diego, CA, USA


Invited Seminar Speakers at Universities

1. Invited seminar speaker, “Solid oxide fuel cell and battery hybrid – a computational perspective, Huazhong University of Science and Technology, June 11, 2015, Wuhan, China

2. Invited seminar speaker, “Sodium strontium silicate as an sodium-ion conductor”, Guilin Institute of Technology, June 8, 2015, Guilin, China

3. Invited seminar speaker, “Electrochemical energy conversion and storage”, Tsinghua University, May 29, 2015, Beijing, China

4. Invited seminar speaker, “Electrochemical energy storage and conversion”, Florida State University, March 19, 2015, USA

5. Invited lecture speaker at ECS student chapter, “Electrochemical CO₂ Capture and Instant Conversion to Syngas”, October 23, 2013, University of South Carolina, Columbia, USA

6. Invited department seminar speaker, “A New Solid Oxide Metal-air redox Battery – beyond the Solid Oxide Fuel Cell”, October 3, 2013, University of South Carolina, Columbia, USA

7. Invited public seminar speaker, “Solid Oxide Fuel Cells for Advanced Energy Storage – a Story about Developing Solid Oxide Metal-air Redox Battery at University of South Carolina”, May 23, 2013, Hong Kong Polytechnic University, Hong Kong, China

8. Invited seminar speaker, “Solid Oxide “Metal-Air” Battery – A New Mechanism for Advanced Energy Storage”, December 20, 2012, Institute of Physics China, Beijing, China


10. Invited seminar speaker, “Mixed Conducting Gas Separation Membranes for CO₂ Capture”, November 16, 2012, Department of Chemical and Biochemical Engineering, Missouri University of Science and Technology, Rolla, MO


12. Invited overseas seminar series, December 9-13, 2011, China University of Mining and Technology Beijing, China


14. ME department seminar series, March 2010, “Materials for solid oxide fuel cells”
15. EFRC “Teach the Teachers” seminar, July 2010, “Energy materials for teachers”
16. SOFC Lab demonstration for the teachers, July 2010

**Contributed Presentations**

1. K. Huang, “An Intermediate-temperature solid oxide iron-air redox battery operated on oxide-ion chemistry”, *MRS 2017 Spring Meeting*, Phoenix, April 17-21, 2017
2. X. Zhao, “All Solid State Tungsten-Air Battery: A New Metal-Air Chemistry”, *ECS224*, San Francisco, October 27-November 1, 2013
4. X. Zhao, X. Li, N. Xu, K. Huang, “A New Solid Oxide Metal-Air Rechargeable Battery for Grid Storage”, *ECS222*, Honolulu, October 7-12, 2012
5. X. Zhao, X. Li, N. Xu, K. Huang, “Solid Oxide Redox Flow Battery – A “Metal-Air” Storage Battery”, *ECS221*, Seattle, Mat 7-11, 2012
11. X. Li, G. Xiao and K. Huang, “Mixed Oxide-Ion and Carbonate-Ion Conductors (MOCCs) as Electrolyte Materials for Solid Oxide Fuel Cells”, B9-1156, *ECS218*, Las Vegas, October 2010
12. X. Dong, K. Huang and F. Chen, “La₀.₉₋ₓCaₓCe₀.₁CrO₃₋δ as a potential anode for SOFCs”, B9-1166, *ECS218*, Las Vegas, October 2010
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<td>1. K. Huang, “A combined “capture and conversion” all-in-one CO₂ reactor”, <strong>MS&amp;T13</strong>, Montreal, October 27- November 1, 2013</td>
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<td>5. Zhao, X. Li, N. Xu, K. Huang*, “A New Solid Oxide Metal-Air Rechargeable Battery for Grid Storage”, <strong>ECS222</strong>, Honolulu, October 7-12, 2012</td>
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**Abstracts**


2. K. Huang, “A novel solid oxide metal air redox battery”, MRS 2014 fall meeting, Boston, Nov.4, 2014


5. K. Huang, “A combined capture and conversion all-in-one CO₂ reactor”, MS&T13, Montreal, October 27 – November 1, 2013


9. X. Zhao, X. Li, N. Xu, K. Huang*, “A New Solid Oxide Metal-Air Rechargeable Battery for Grid Storage”, ECS222, Honolulu, October 7-12, 2012
10. X. Zhao, X. Li, N. Xu, K. Huang*, “Solid Oxide Redox Flow Battery – A “Metal-Air” Storage Battery”, ECS221, Seattle, Mat 7-11, 2012
15. K. Huang* and G. Zhang, “High temperature electrolysis using pilot scale cathode-supported SOFCs”, B1-0190, ECS218, Las Vegas, October 2010
16. X. Li, G. Xiao and K. Huang*, “Mixed Oxide-Ion and Carbonate-Ion Conductors (MOCCs) as Electrolyte Materials for Solid Oxide Fuel Cells”, B9-1156, ECS218, Las Vegas, October 2010
17. X. Dong, K. Huang and F. Chen, “La0.9−xCaxCe0.1CrO3−δ as a potential anode for SOFCs”, B9-1166, ECS218, Las Vegas, October 2010

Siemens Internal Memorandums

There are a total of 110 internal memos published by Siemens Energy from year 2000 to 2009. (can provide the list of these reports if needed)