

Curriculum Vitae

Shuang Gu, Ph.D.

Assistant Professor

Department of Mechanical Engineering

Wichita State University

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(As of 9/1/2015)

EDUCATION

Ph.D. Chemical Engineering, Dalian University of Technology	09/2001–12/2007
• Advisor: Prof. Gaohong He	
B.E. Chemical Engineering, Dalian University of Technology	09/1996–07/2000
• Advisor: Prof. Zongchang Zhao	

PROFESSIONAL APPOINTMENTS

Assistant Professor, Wichita State University	08/2015–Present
• Department of Mechanical Engineering	
Research Assistant Professor, University of Delaware	10/2012–07/2015
• Department of Chemical & Biomolecular Engineering	
Postdoctoral Researcher, University of Delaware	09/2011–09/2012
• Department of Chemical & Biomolecular Engineering, Advisor: Prof. Yushan Yan	
Postdoctoral Researcher, University of California – Riverside	08/2008–08/2011
• Department of Chemical & Environmental Engineering, Advisor: Prof. Yushan Yan	
Junior Researcher, University of California – Riverside	08/2007–07/2008
• Department of Chemical & Environmental Engineering, Advisor: Prof. Yushan Yan	
Assistant Engineer, China Petroleum & Chemical Corporation	07/2000–07/2001
• SINOPEC Shanghai Gaoqiao Petrochemical Company	

RESEARCH GRANTS

EERE 2014 Fuel Cell Incubator/U.S. Department of Energy (Co-PI)	\$600,000
• Highly Stable Membranes for Redox-Flow Batteries (PI: Prof. Yushan Yan)	5/1/2015 – 4/30/2017
ARPA-E 2012 Open Call/U.S. Department of Energy (Co-PI)	\$793,071
• High-voltage and low-crossover redox-flow batteries (PI: Prof. Yushan Yan)	1/9/2013 – 12/31/2015
ARPA-E Plus-Up/ U.S. Department of Energy (Co-PI)	\$60,000
• Development of cost model for redox-flow batteries (PI: Prof. Yushan Yan)	10/1/2014 – 9/30/2015
UDEI Innovative Energy Research Grants Program/University of Delaware (Co-PI)	\$25,000
• Electrochemical activation of CH ₄ for liquid fuels (PI: Prof. Yushan Yan)	3/31/2014 – 3/30/2015
UDEI Innovative Energy Research Grants Program/University of Delaware (Co-PI)	\$25,000
• Modeling of redox reactions in flow batteries (PI: Prof. Dion Vlachos)	3/31/2014 – 3/30/2015

PATENTS

Granted Patents

1. Y.S. Yan, **S. Gu**, and R. Cai, Highly basic ionomers and membranes and anion/hydroxide exchange fuel cells comprising ionomers and membranes, **US Patent**, No. 8,641,949, granted on 2/14/2014. (*Licensed to OH-Energy Inc.*)
2. Y.S. Yan, **S. Gu**, and F. Wang, Highly basic ionomers and membranes and anion/hydroxide exchange fuel cells comprising ionomers and membranes, **US Patent**, No. 8,535,586, granted on 9/17/2013.
3. X.M. Wu, G.H. He, L. Gao, **S. Gu**, Z.W. Hu, X.G. Jian, P.J. Yao, Sulfonated poly (phthalazinone ether sulfone ketone)/polypolyacrylic acid proton exchange membranes and its preparation, **China Patent**, No. CN1786059A, granted on 8/13/2008.
4. G.H. He, Z.Q. Ma, X.G. Jian, G.H. Chen, X.M. Wu, B.L. Yu, **S. Gu**, Sulfonated poly (phthalazinone ether sulfone ketone) proton exchange membrane and its preparation, **China Patent**, No. CN1564341A, granted on 8/2/2006.

Pending Patents

5. Y.S. Yan, **S. Gu**, K. Gong, Ion-selective ceramic membrane-based all-aqueous redox-flow batteries, **US Provisional Patent Application**, No. 62/183,866, filed on 6/24/2015.
6. Y.S. Yan, **S. Gu**, K. Gong, X.Y. Ma, A zinc-iron redox-flow battery costing under \$100/kWh, **US Provisional Patent Application**, No. 62/036,748, filed on 8/13/2014.
7. Y.S. Yan, **S. Gu**, and R. Cai, Highly basic ionomers and membranes and anion/hydroxide exchange fuel cells comprising ionomers and membranes, **US Patent Application**, No. US 14/171,546, filed on 8/7/2014.
8. Y.S. Yan, B.Z. Zhang, **S. Gu**, Phosphonium cations and polymers hydroxide exchange membranes based on these cations, **US Provisional Patent Application**, No. 62/026,755, filed on 7/21/2014.
9. Y.S. Yan, **S. Gu**, K. Gong, Double-membrane triple-electrolyte design for high-voltage and low-cross-over redox flow batteries, **US Patent Application**, No. 13/918,444, filed on 6/14/2013; **PCT Patent Application**, No. PCT/US2013/045595, filed on 6/13/2013. (*Licensed to DEGi-Storage LLC*)
10. Y.S. Yan, **S. Gu**, K. Gong, Multiple-membrane multiple-electrolytes redox flow battery design, **US Patent Application**, No. 13/918452, filed on 6/14/2013; **PCT Patent Application**, No. PCT/US2013/045595, file on 6/13/2013. (*Licensed to DEGi-Storage LLC*)
11. Y.S. Yan, **S. Gu**, J.H. Wang, Introducing permethyl-cobaltocenium cation as functional group for polymer hydroxide exchange membranes, **US Provisional Patent Application**, No. 61/897,300, filed on 10/30/2013.
12. Y.S. Yan, J.H. Wang, **S. Gu**, Cation-strung side chain polymers useful in hydroxide/anion exchange membranes, **US Patent Application**, No. 14/048,500, filed on 10/8/2013; **PCT Patent Application**, No. PCT/US2013/063828, filed on 10/8/2013.
13. Y.S. Yan, C. Lew, Q. Xu, F. Wang, **S. Gu**, W.C. Sheng, S.M. Alia, L. Xiong, Membranes and catalysts for fuel cells, gas separation cells, electrolyzers and solar hydrogen applications, **US Provisional Patent Application**, No. 61/545,536, filed on 10/10/2011; **PCT Patent Application**, No. PCT/US2012/059625, filed on 10/10/2012.
14. Y.S. Yan, S.M. Alia, B.Z. Zhang, **S. Gu**, T. Luo, Y.Q. Zhang, Q. Xu, Fuel Cell Systems and Components, **US Provisional Patent Application**, No. 61/414,878, filed on 11/17/2010.

PUBLICATIONS

Corresponding-Author Publications

1. K. Gong, Q.R. Fang, **S. Gu***, S.F.Y. Li, and Y.S. Yan*, [Nonaqueous redox-flow batteries: organic solvents, supporting electrolytes, and redox pairs](#), *Energy Environ. Sci.*, **2015**, In press. DOI: 10.1039/c5ee02341f
2. **S. Gu***, K. Gong, E.Z. Yan, Y.S. Yan*, [A multiple ion-exchange membrane cell design for redox flow batteries](#), *Energy Environ. Sci.*, **2014**, 7, 2986–2998. (*Back-Cover Picture, Highlighted by Chemical Engineering Process*)

First-Author Publications

3. [S. Gu](#), J.H. Wang, R.B. Kaspar, Q.R. Fang, B.Z. Zhang, E.B. Coughlin, and Y.S. Yan, [Permethyln Cobaltocenium \(Cp*₂Co⁺\) as an Ultra-Stable Cation for Polymer Hydroxide-Exchange Membranes](#), *Sci. Rep.*, **2015**, 5, Article No.: 11668.
4. [S. Gu](#), J.H. Wang, B.Z. Zhang, R.B. Kaspar, and Y.S. Yan, [Hydroxide exchange membranes and ionomers](#), Book Chapter (Ch. 6) in *Materials for Low-Temperature Fuel Cells*, 1st Ed., edited by B. Ladewig, S.P. Jiang, Y.S. Yan, and G.Q.M. Lu., Wiley-VCH, **2015**, in press. (*Invited Book Chapter*)
5. [S. Gu*](#), K. Gong, E.Z. Yan, Y.S. Yan*, [A multiple ion-exchange membrane cell design for redox flow batteries](#), *Energy Environ. Sci.*, **2014**, 7, 2986–2998. (*Back-Cover Picture, Highlighted by Chemical Engineering Process*)(Same as the Paper #2)
6. [S. Gu](#), B.J. Xu, Y.S. Yan, [Electrochemical Energy Engineering: A New Frontier of Chemical Engineering Innovation](#), *Annu. Rev. Chem. Biomol. Eng.*, **2014**, 5, 429–454. (*Invited Review Paper*)
7. [S. Gu](#), W.C. Sheng, R. Cai, S.M. Alia, S.Q. Song, K.O. Jensen, Y.S. Yan, [An efficient Ag-ionomer interface for hydroxide exchange membrane fuel cells](#), *Chem. Commun.* **2013**, 49, 131–133. (*Inside-Cover Picture, Highlighted by UDaily*)
8. [S. Gu](#), J. Skovgard, Y.S. Yan, [Engineering the Van der Waals Interaction in Cross-Linking-Free Hydroxide Exchange Membranes for Low Swelling and High Conductivity](#), *ChemSusChem*, **2012**, 5, 843–848. (*Cover Picture, Invited Research Paper, Highlighted by UDaily*)
9. [S. Gu](#), R. Cai, Y.S. Yan, [Self-crosslinking for dimensionally stable and solvent-resistant quaternary phosphonium based hydroxide exchange membranes](#), *Chem. Commun.*, **2011**, 47, 2856–2858. (*100+ Citations*)
10. [S. Gu](#), R. Cai, T. Luo, K.O. Jensen, C. Contreras, Y.S. Yan, [Quaternary Phosphonium Based Polymers as Hydroxide Exchange Membranes](#), *ChemSusChem*, **2010**, 3, 555–558. (*Cover Picture, 50+ Citations*)
11. [S. Gu](#), G.H. He, X.M. Wu, Z.W. Hu, L.L. Wang, G.K. Xiao, L. Peng, [Preparation and characterization of poly\(vinylidene fluoride\)/sulfonated poly\(phthalazinone ether sulfone ketone\) blends for proton exchange membrane](#), *J. Appl. Polym. Sci.*, **2010**, 116, 852–860.
12. [S. Gu](#), R. Cai, T. Luo, M.W. Sun, Y. Liu, G.H. He, Y.S. Yan, [A soluble and highly conductive ionomer for high-performance hydroxide exchange membrane fuel cells](#), *Angew. Chem. Int. Ed.*, **2009**, 48, 6499–6502. (*Cover Picture, 200+ Citations*)
13. [S. Gu](#), G.H. He, X.M. Wu, Y.J. Guo, H.J. Liu, L. Peng, G.K. Xiao, [Preparation and characteristics of crosslinked poly\(vinyl alcohol\) with sulfonated poly\(phthalazinone ether sulfone ketone\) for proton exchange membrane](#), *J. Membr. Sci.*, **2008**, 312, 48–58. (*50+ Citations*)
14. [S. Gu](#), G.H. He, X.M. Wu, C.N. Li, H.J. Liu, C. Lin, X.C. Li, [Synthesis and characteristics of sulfonated poly\(phthalazinone ether sulfone ketone\) \(SPPEsk\) for direct methanol fuel cell \(DMFC\)](#), *J. Membr. Sci.*, **2006**, 281, 121–129. (*50+ Citations*)
15. [S. Gu](#), G.H. He, X.M. Wu, H.J. Liu, Y.J. Guo, L.N. Li, Separation-purification and mathematical model of sulfonated poly(phthalazinone ether sulfone ketone) (SPPEsk), *Proceedings of the 2nd European Conference on Filtration and Separation*, **2006**, 349–361.
16. [S. Gu](#), G.H. He, X.M. Wu, L. Chang, Research and development of new-style proton exchange membrane in fuel cell, *Membr. Sci. Tech.* (Chinese journal), **2005**, 25, 92–96. (*Invited Review Paper*)
17. [S. Gu](#), G.H. He, X.M. Wu, X.C. Li, SPPEsk's new separation approach—precipitation separation, *Chem. Ind. Eng. Prog.* (Chinese journal), **2003**, 22-Z1, 270–273.

Co-Author Publications

15. Q.R. Fang, J.H. Wang, [S. Gu](#), R.B. Kaspar, Z.B. Zhuang, J. Zheng, H.X. Guo, S.L. Qiu, and Y.S. Yan, [3D Porous Crystalline Polyimide Covalent Organic Frameworks for Drug Delivery](#), *J. Am. Chem. Soc.*, **2015**, 137, 8352–8355.
16. Y. Huang, [S. Gu](#), Y.S. Yan, and S.F.Y. Li, [Nonaqueous redox-flow batteries: feature, challenges, and prospects](#), *Curr. Opin. Chem. Eng.*, **2015**, 8, 105–113.
17. X.M. Yan, X.M. Wu, G.H. He, [S. Gu](#), X. Gong, and J. Benziger, [A Methanesulfonic Acid/Sulfuric Acid-Based Route for Easily-Controllable Chloromethylation of Poly\(ether ether ketone\)](#), *J. Appl. Polym. Sci.*, **2015**, 132, Article No.: 41404.

18. R.B. Kaspar, M.P. Letterio, J.A. Wittkopf, K. Gong, **S. Gu**, Y.S. Yan, [Manipulating Water in High-Performance Hydroxide Exchange Membrane Fuel Cells through Asymmetric Humidification and Wetproofing](#), *J. Electrochem. Soc.*, **2015**, 162, F483–F488.
19. Y.Y. Xie, W.M. Zhang, **S. Gu**, Y.S. Yan, and Z.F. Ma, [Process engineering in electrochemical energy devices innovation](#), *Chin. J. Chem. Eng.*, **2015**, In press.
20. X.M. Yan, **S. Gu**, G.H. He, X.M. Wu, W.J. Zheng, X.H. Ruan, [Quaternary phosphonium-functionalized poly\(ether ether ketone\) as highly conductive and alkali-stable hydroxide exchange membrane for fuel cells](#), *J. Membr. Sci.*, **2014**, 466, 220–228.
21. Q.R. Fang, Z.B. Zhuang, **S. Gu**, R.B. Kaspar, J. Zheng, J.H. Wang, S.L. Qiu, Y.S. Yan, [Designed synthesis of large-pore crystalline polyimide covalent organic frameworks](#), *Nat. Commun.*, **2014**, 5, Article No.: 4503.
22. M.R. Gao, W.C. Sheng, Z.B. Zhuang, Q.F. Fang, **S. Gu**, J. Jiang, Y.S. Yan, [Efficient Water Oxidation Using Nanostructured alpha-Nickel-Hydroxide as an Electrocatalyst](#), *J. Am. Chem. Soc.*, **2014**, 136, 7077–7084.
23. X.M. Yan, **S. Gu**, G.H. He, X.M. Wu, J. Benziger, [Imidazolium-functionalized poly\(ether ether ketone\) as membrane and electrode ionomer for low-temperature alkaline membrane direct methanol fuel cell](#), *J. Power Sources*, **2014**, 250, 90–97.
24. Q.F. Fang, **S. Gu**, J. Zheng, S.L. Qiu, Y.S. Yan, [3D Microporous Base-Functionalized Covalent Organic Frameworks for Size-Selective Catalysis](#), *Angew. Chem. Int. Ed.*, **2014**, 126, 2922–2926.
25. L. Xiong, **S. Gu**, K.O. Jensen, Y.S. Yan, [Facilitated transport in hydroxide exchange membranes for post-combustion CO₂ separation](#), *ChemSusChem*, **2014**, 7, 114–116.
26. Z.W. Hu, G.H. He, **S. Gu**, Y.F. Liu, X.M. Wu, [Montmorillonite-reinforced sulfonated poly\(phthalazinone ether sulfone ketone\) nanocomposite proton exchange membranes for direct methanol fuel cells](#), *J. Appl. Polym. Sci.*, **2014**, 131, Article No.: 39852.
27. J.H. Wang, **S. Gu**, R.B. Kaspar, B.Z. Zhang, Y.S. Yan, [Stabilizing the imidazolium cation in hydroxide-exchange membranes for fuel cells](#), *ChemSusChem*, **2013**, 6, 2079–2082.
28. B.Z. Zhang, **S. Gu**, J.H. Wang, Y. Liu, A.M. Herrings, Y.S. Yan, [Tertiary sulfonium as a cationic functional group for hydroxide exchange membranes](#), *RSC Adv.*, **2012**, 2, 12683–12685.
29. X.M. Yan, G.H. He, **S. Gu**, X.M. Wu, L.G. Du, Y.D. Wang, [Imidazolium-functionalized polysulfone hydroxide exchange membranes for potential applications in alkaline direct alcohol fuel cells](#), *Int. J. Hydrogen Energy*, **2012**, 37, 5216–5224.
30. X.M. Yan, G.H. He, **S. Gu**, X.M. Wu, L.G. Du, H.Y. Zhang, [Quaternized poly\(ether ether ketone\) hydroxide exchange membranes for fuel cells](#), *J. Membr. Sci.*, **2011**, 375, 204–211.
31. H. Sarode, M.A. Vandiver, A.M. Maes, B. Caire, J.L. Horan, Y.T. Yang, G.E. Lindberg, J.F. Dama, C. Knight, R. Jorn, M.E. Lenz, R.Z. Kaspar, **S. Gu**, B.Z. Zhang, S. Seifert, T.H. Tsai, W.X. Zhang, E.B. Coughlin, D.M. Knauss, Y.S. Yan, G.A. Voth, T.A. Witten, M. Liberatore, A.M. Herrings, [Designing Alkaline Exchange Membranes from Scratch](#), *ECS Trans.*, **2011**, 41, 1761–1774.
32. R. Cai, Y. Liu, **S. Gu**, Y.S. Yan, [Ambient pressure dry-gel conversion method for zeolite MFI synthesis using ionic liquid and microwave heating](#), *J. Am. Chem. Soc.*, **2010**, 132, 12776–12777.
33. S.M. Alia, G. Zhang, D. Kisailus, D.S. Li, **S. Gu**, K.O. Jensen, Y.S. Yan, [Porous platinum nanotubes for oxygen reduction and methanol oxidation reactions](#), *Adv. Funct. Mater.* **2010**, 20, 3742–3746. (Cover Picture, Invited Research Paper)
34. X.M. Wu, G.H. He, **S. Gu**, Z.W. Hu, X.M. Yan, [The state of water in the series of sulfonated poly\(phthalazinone ether sulfone ketone\) \(SPPEsk\) proton exchange membranes](#), *Chem. Eng. J.*, **2010**, 156, 578–581.
35. Q. Rong, **S. Gu**, G.H. He, X.M. Wu, Z.W. Hu, X.M. Yan, Studies on preparation and properties of sulfonated polyether ether ketone/poly4-vinylpyridine acid-base composite proton exchange membranes, *Polym. Mater. Sci. Eng.* (Chinese journal), **2009**, 25, 126–129.
36. X.M. Wu, G.H. He, **S. Gu**, Z.W. Hu, P.J. Yao, [Novel interpenetrating polymer network sulfonated poly\(phthalazinone ether sulfone ketone\)/polyacrylic acid proton exchange membranes for fuel cell](#), *J. Membr. Sci.*, **2007**, 295, 80–87.

37. X.M. Wu, G.H. He, **S. Gu**, W. Chen, P.J. Yao, [Sulfonation of Poly\(phthalazinone ether sulfone ketone\) by Heterogeneous Method and Its Potential Application on Proton Exchange Membrane \(PEM\)](#), *J. Appl. Polym. Sci.*, **2007**, 104, 1002–1009.
38. C. Lin, G.H. He, X.C. Li, L. Peng, C.X. Dong, **S. Gu**, G.K. Xiao, [Freeze/thaw induced demulsification of water-in-oil emulsions with loosely packed droplets](#), *Sep. Pur. Tech.*, **2007**, 56, 175–183.
39. X.M. Wu, G.H. He, **S. Gu**, Z.W. Hu, P.J. Yao, Microstructure of the cross-linked sulfonated poly(phthalazinone ether sulfone ketone) (SPPEK) charged membranes via sulfonamide linkages, *J. Funct. Mater.* (Chinese journal), **2006**, 37, 1341–1344.
40. X.M. Wu, G.H. He, L. Gao, **S. Gu**, Z.W. Hu, P.J. Yao, Synthesis and water uptake of sulfonated poly(phthalazinone ether sulfone ketone)/polyacrylic acid proton exchange membranes, *Chin. Chem. Lett.*, **2006**, 17, 965–968.
41. H.J. Liu, G.H. He, L.N. Li, **S. Gu**, C. Liu, G.K. Xiao, [Evaluation of calculating the isotonic swelling ratio of emulsion liquid membrane by theoretical viscosity models](#), *J. Disper. Sci. Tech.*, **2006**, 27, 773–779.
42. X.M. Wu, G.H. He, **S. Gu**, P.J. Yao, Application of chemical cross-linking on the preparation of proton exchange membranes, *Polym. Mater. Sci. Eng.* (Chinese journal), **2006**, 22, 28–31.
43. X.M. Wu, G.H. He, **S. Gu**, P.J. Yao, Sulfonation: A promising method for preparation of polymer charged membranes, *Polym. Mater. Sci. Eng.* (Chinese journal), **2005**, 21, 7–13.
44. X.C. Li, G.H. He, **S. Gu**, X.J. Zhang, Extraction of BSA by reversed micelles, *Proceedings on the Biomedical Engineering of Dalian University of Technology*, **2003**, 1, 341–346.
45. X.M. Wu, G.H. He, **S. Gu**, P.J. Yao, Polymer electrolyte membranes and their modification for FC, *Chem. Ind. Eng. Prog.* (Chinese journal), **2003**, 22-Z1, 292–296.
46. X.C. Li, G.H. He, W.Z. Quan, **S. Gu**, Extraction of BSA by Cationic Reversed Micelles, *Chem. Ind. Eng. Prog.* (Chinese journal), **2003**, 22-Z1, 206–210.

CONFERENCE PRESENTATIONS

Invited Talks

1. **S. Gu**, Y.S. Yan, Quaternary phosphonium-based polymer electrolytes for high-performance hydroxide exchange membrane fuel cells, Invited talk at the *ACS Meeting*, August 19–23, **2012**, Philadelphia, PA.
2. **S. Gu**, Y.S. Yan, Quaternary phosphonium-based hydroxide exchange membranes for possible applications in solar energy conversion and storage, Invited talk at the *ACS Meeting*, August 19–23, **2012**, Philadelphia, PA.
3. **S. Gu**, R. Cai, Y.S. Yan, Self-crosslinking of quaternary phosphonium-based polymers: highly dimension-stable hydroxide exchange membranes, Invited talk at the *AIChE Meeting*, November 7–12, **2010**, Salt Lake City, UT.

Other Presentations

20+ conference presentations at meetings including AIChE, ECS, ACS, and IUPAC (details omitted)

TEACHING EXPERIENCES

Instructor

- Teaching “Thermodynamics I” (ME 398) of Mechanical Engineering Major, Wichita State University, 2015 fall

Teaching Assistant

- Preparing problem solutions for the core undergraduate class “Mass Transfer Operations” (CHEG 443) of Chemical Engineering Major, University of Delaware, 2014 fall
- Marking examination papers for the undergraduate class “Sustainable Energy Policy and Planning” (ENEP 824) of Chemical Engineering Major, University of Delaware, 2013 summer
- Preparing lecture presentation “Hydroxide Exchange Membrane Fuel Cells: The Fuel Cell?” for the graduate class “Electrochemical Energy Technologies”, University of Delaware, 2012 spring

- Delivering lectures to Korean undergraduate students at the China-Korea University Communication, Dalian University of Technology, 2006 spring
- Delivering lectures for the core undergraduate class of “Membrane Separation Process” at Dalian University of Technology, China, 2006 summer
- Delivering lectures for the core undergraduate class of “Membrane Separation Process” at Dalian University of Technology, China, 2005 summer

AWARDS

- **EERE Award** from DOE (2014 Fuel Cell Incubator), “Highly Stable Anion-Exchange Membranes for High-Voltage Redox-Flow Batteries”, Co-PI (PI: Prof. Y.S. Yan), total grant of \$600,000, 7/1/2015–6/30/2017, 2015
- **UDEI Award** from University of Delaware (Innovative Energy Research Grants Program), “Electrochemical activation of CH₄ for liquid fuels”, Co-PI (PI: Prof. Y.S. Yan), total grant of \$25,000, 2014
- **UDEI Award** from University of Delaware (Innovative Energy Research Grants Program), “Modeling of redox reactions in flow batteries”, Co-PI (PI: Prof. Don Vlachos), total grant of \$25,000, 2014
- **ARPA-E Award** from DOE (2012 OPEN CALL), “High-voltage and low-crossover redox flow batteries for economical and efficient electricity storage”, sole Co-PI (PI: Prof. Y.S. Yan), total grant of \$793,071, 1/9/2013–12/31/2015, 2012 (*1 of 66 Awards among 4,000+ of Concept Papers*)
- **High Quality Paper Award** from Dalian Univ. Tech., first-author paper “**S. Gu** et al., *J Membr. Sci.*, **2006**, 281, 121–129.”, 2011
- **Excellent Graduate Student Award**, from Dalian Univ. Tech., 2003
- **Excellent Graduate Student Award**, from Dalian Univ. Tech., 2002
- **Best Employee** from SINOPEC – Shanghai, 2001
- **Excellent Undergraduate Student Award**, from Dalian Univ. Tech., 1999
- **Excellent Undergraduate Student Award**, from Dalian Univ. Tech., 1998
- **Excellent Undergraduate Student Award**, from Dalian Univ. Tech., 1997

REVIEWER SERVICE & PROFESSIONAL MEMBERSHIPS

Reviewer Service

- **RSC publishing journals:** *J. Mater. Chem.*, since 2010; *Chem. Commun.*, since 2012; *Chem. Sci.*, *Nanoscale*, and *RSC Adv.*, since 2013; *Chem. Soc. Rev.*, *Energy Environ. Sci.*, *J. Mater. Chem.*, and *Phys. Chem. Chem. Phys.*, since 2014
- **Elsevier publishing journals:** *Chin. J. Catal.*, since 2011; *J. Membr. Sci.*, since 2008; *Polymer*, since 2009; *Int. J. Hydrogen Energy*, since 2010
- **ACS publishing journals:** *Ind. Eng. Chem. Res.*, and *J. Phys. Chem.*, since 2012; *Chem. Mater.*, since 2013
- **Wiley-VCH publishing journals:** *J. Appl. Polym. Sci.*, since 2009; *Angew. Chem. Int. Ed.*, since 2013; *Advanced Science*, since 2015
- **ECS publishing journals:** *J. Electrochem. Soc.*, since 2013; *ECS Electrochem. Lett.*, since 2014
- **NPG publishing journals:** *Sci. Rep.*, since 2013

Professional Memberships

- ACS, since 2012
- AIChE, since 2010
- ECS, since 2008