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EDUCATION AND ACADEMIC EXPERIENCE

10/2018−present Stanford University, SLAC, SUNCAT
- Postdoctoral fellow
- Advisor: Dr. **Frank Abild-Pedersen** & Prof. **Thomas Jaramillo**

10/2015−9/2016 Stanford University, SLAC, SUNCAT
- Visiting scholar for a 1-year research program on CO_2 reduction, electrochemical interface modeling, and DFT calculation
- Advisor: Dr. **Karen Chan** & Prof. **Jens K. Nørskov**

8/2013−7/2018 Ph.D. in Chemical Engineering, Tsinghua University
- Thesis: "*Interface-Regulated Design of High-Performance Composite Sulfur Cathode Materials*"
- Advisor: Prof. **Qiang Zhang** & Prof. **Fei Wei**

8/2009−7/2013 B.S. in Chemical Engineering, Tsinghua University

RESEARCH EXPERIENCE AND SKILLS

Material Synthesis
- CVD growth of carbon nanomaterials (CNT, graphene, and porous carbon)
- Hydro-/solvothermal or wet chemical synthesis of inorganic nanomaterials and their composites with nanocarbon
- Precise synthesis of organic functional materials including covalent organic frameworks (COFs), conductive polymers, and supramolecular crystals
- Solution-processed flexible thin films

Research Methods
- SEM, TEM, HAADF-STEM, XRD, XPS, TGA, UV-vis, FTIR, Raman, physical adsorption, four-probe measurement
- Galvanostatic/potentiostatic tests, CV, EIS, RDE tests
- DFT calculation

Application
- 6-year hands-on experience: **Li−S batteries**
- Extensive knowledge: **Li metal** and other batteries (Li-ion, Na-ion, redox flow, etc.); **solid-state electrolytes** (polymer, ceramic, glass, etc.); **electrocatalysis** (ORR, OER, HER, CO_2RR, NRR, etc.)

HONORS AND AWARDS

4/2018 **2018 MRS Silver Graduate Student Award**
4/2015 **2015 MRS Silver Graduate Student Award**
11/2017 **The Top Class Scholarship of Tsinghua University** (Award to 10/32000)

5/2017 **Academic Rising Star of Graduate Students in Tsinghua University** (Award to 10/32000)

8/2015 Princeton and Solartron Best Oral Presentation Award
18th National Conference on Electrochemistry

6/2015 The Best Oral Presentation Award
Frontier of Nanochemistry 2015

7/2017 The Best Poster Award
9th Frontier in Chemical Engineering: Global Chinese Chemical Engineers Symposium

4/2017 The Best Poster Award
2017 International Forum on Graphene

10/2016 The Best Poster Award
12th IUPAC International Conference on Novel Materials and their Synthesis (NIM-XII)

12/2014 The Best Poster Award
1st International Conference on Nanoenergy and Nanosystems

7/2018 Excellent Graduate Student Award in Tsinghua University

7/2018 Excellent Thesis for Doctoral Degree in Tsinghua University

10/2016 2016 National Scholarship for Graduate Students

10/2015 2015 National Scholarship for Graduate Students

10/2014 2014 National Scholarship for Graduate Students

6/2013 Excellent Thesis for Undergraduates in Tsinghua University

8/2018 The Best Reviewer Award
Journal of Energy Chemistry

11/2015 Outstanding Reviewer Award
Materials Sciences & Engineering B

PUBLICATIONS

Survey (until Oct.19, 2018)

- Total publication: **65** (*Web of Science*); **67** (*Google Scholar*)
- Total citation: **5277** (*Web of Science*); **6589** (*Google Scholar*)
- H-factor: **38** (*Web of Science*); **42** (*Google Scholar*)

First and Co-first Authored Papers

- **23** in total, including **12 ESI Highly Cited Papers** and **1 ESI Hot Paper**
- ***Chem. Soc. Rev.*** (1), ***J. Am. Chem. Soc.*** (1), ***Angew. Chem., Int. Ed.*** (3), ***Adv. Mater.*** (2), ***Nano Lett.*** (1), ***ACS Nano*** (1), ***Adv. Energy Mater.*** (1), ***Adv. Funct. Mater.*** (4), ***Nano Energy*** (1)

*(# Equally Contributed; * Correspondence; Google Scholar Citation: until Oct. 19, 2018)*

1. Yuan, Z.;# **Peng, H. J.**;# Hou, T. Z.;# Huang, J. Q.; Chen, C. M.; Wang, D. W.; Cheng, X. B.; Wei, F.; Zhang, Q.* Powering Lithium−Sulfur Battery Performance by Propelling Polysulfide Redox at Sulfiphilic Hosts. ***Nano Lett.*** 2016, 16, (1), 519–527. (IF = 12.080, Citations: **329**, **ESI Highly Cited Paper**)
2. **Peng, H. J.**; Huang, J. Q.; Zhao, M. Q.; Zhang, Q.;* Cheng, X. B.; Liu, X. Y.; Qian, W. Z.; Wei, F.* Nanoarchitectured Graphene/CNT@Porous Carbon with Extraordinary Electrical Conductivity and Interconnected Micro/Mesopores for Lithium-Sulfur Batteries. ***Adv. Funct. Mater.*** 2014, 24, (19), 2772–2781. (Back Cover, IF = 13.325, Citations: **313**, **ESI Highly Cited Paper**)

3. Yuan, Z.;[#] **Peng, H. J.**;[#] Huang, J. Q.;* Liu, X. Y.; Wang, D. W.; Cheng, X. B.; Zhang, Q.* Hierarchical Free-Standing Carbon-Nanotube Paper Electrodes with Ultrahigh Sulfur-Loading for Lithium–Sulfur Batteries. ***Adv. Funct. Mater.*** 2014, 24, (39), 6105–6112. (Back Cover, IF = 13.325, Citations: **266**, **ESI Highly Cited Paper**)
4. **Peng, H. J.**; Hou, T. Z.; Zhang, Q.;* Huang, J. Q.; Cheng, X. B.; Guo, M. Q.; Yuan, Z.; He, L. Y.; Wei, F. Strongly Coupled Interfaces between a Heterogeneous Carbon Host and a Sulfur-Containing Guest for Highly Stable Lithium-Sulfur Batteries: Mechanistic Insight into Capacity Degradation. ***Adv. Mater. Interfaces*** 2014, 1, (7), 1400227. (Inside Cover, IF = 4.834, Citations: **204**, **ESI Highly Cited Paper**)
5. **Peng, H. J.**; Huang, J. Q.; Cheng, X. B.; Zhang, Q.* Review on High-Loading and High-Energy Lithium-Sulfur Batteries. ***Adv. Energy Mater.*** 2017, 7, (24), 1700260. (Inside Cover, IF = 21.875, Citations: **186**, **ESI Highly Cited Paper and Hot Paper**)
6. **Peng, H. J.**;[#] Zhang, Z. W.;[#] Huang, J. Q.;* Zhang, G.; Xie, J.; Xu, W. T.; Shi, J. L.; Chen, X.; Cheng, X. B.; Zhang, Q.* A Cooperative Interface for Highly Efficient Lithium–Sulfur Batteries. ***Adv. Mater.*** 2016, 28, (43), 9551–9558. (Frontispiece, IF = 21.950, Citations: **165**, **ESI Highly Cited Paper**)
   - Highlighted by *The Electrochemical Society (ECS)*
7. **Peng, H. J.**;[#] Wang, D. W.;[#] Huang, J. Q.;* Cheng, X. B.; Yuan, Z.; Wei, F.; Zhang, Q.* Janus Separator of Polypropylene-Supported Cellular Graphene Framework for Sulfur Cathodes with High Utilization in Lithium–Sulfur Batteries. ***Adv. Sci.*** 2016, 3, (1), 1500268. (Front Cover, IF = 12.441, Citations: **165**, **ESI Highly Cited Paper**)
8. **Peng, H. J.**;[#] Zhang, G.;[#] Chen, X.; Zhang, Z. W.; Xu, W. T.; Huang, J. Q.; Zhang, Q.* Enhanced Electrochemical Kinetics on Conductive Polar Mediators for Lithium–Sulfur Batteries. ***Angew. Chem. Int. Ed.*** 2016, 55, (42), 12990–12995. (Frontispiece, IF = 12.102, Citations: **142**, **ESI Highly Cited Paper**)
   - Highlighted as **Hot Paper** by *Angew. Chem.*
9. **Peng, H. J.**;[#] Xu, W. T.;[#] Zhu, L.; Wang, D. W.; Huang, J. Q.;* Cheng, X. B.; Yuan, Z.; Wei, F.; Zhang, Q.* 3D Carbonaceous Current Collectors: The Origin of Enhanced Cycling Stability for High-Sulfur-Loading Lithium−Sulfur Batteries. ***Adv. Funct. Mater.*** 2016, 26, (35), 6351–6358. (Front Cover, IF = 13.325, Citations: **107**, **ESI Highly Cited Paper**)
10. **Peng, H. J.**; Huang, J. Q.; Zhang, Q.* A review of flexible lithium–sulfur and analogous alkali metal–chalcogen rechargeable batteries. ***Chem. Soc. Rev.*** 2017, 46, (17), 5237–5288. (Inside Cover, IF = 40.182, Citations: **82**, **ESI Highly Cited Paper**)
    - Highlighted by *Royal Society of Chemistry*
11. Chen, X.;[#] **Peng, H. J.**;[#] Zhang, R.; Hou, T. Z.; Huang, J. Q.; Li, B.; Zhang, Q.* An Analogous Periodic Law for Strong Anchoring of Polysulfides on Polar Hosts in Lithium Sulfur Batteries: S- or Li-Binding on First-Row Transition-Metal Sulfides? ***ACS Energy Lett.*** 2017, 2, (4), 795–801. (IF = 12.277, Citations: **43**, **ESI Highly Cited Paper**)
12. **Peng, H. J.**; Huang, J. Q.; Liu, X. Y.; Cheng, X. B.; Xu, W. T.; Zhao, C. Z.; Wei, F.; Zhang, Q.* Healing High-Loading Sulfur Electrodes with Unprecedented Long Cycling Life: Spatial Heterogeneity Control. ***J. Am. Chem. Soc.*** 2017, 139, (25), 8458–8466. (Front Cover, IF = 14.357, Citations: **42**, **ESI Highly Cited Paper**)
    - Highlighted as **Spotlight** on *J. Am. Chem. Soc.*
    - Highlighted on *Chem*: "*Bio-inspired Self-Healing Electrolytes for Li-S Batteries*"

13. **Peng, H. J.**; Zhang, Q.* Designing Host Materials for Sulfur Cathodes: From Physical Confinement to Surface Chemistry. ***Angew. Chem. Int. Ed.*** 2015, 54, (38), 11018–11020. (Inside Back Cover, IF = 12.102, Citations: **107**)
14. Xie, J.;[#] **Peng, H. J.**;[#] Huang, J. Q.; Xu, W. T.; Chen, X.; Zhang, Q.* A Supramolecular Capsule for Reversible Polysulfide Storage/Delivery in Lithium-Sulfur Batteries. ***Angew. Chem. Int. Ed.*** 2017, 56, (51), 16223–16227. (IF = 12.102, Citations: **11**)
    - Highlighted as **Very Important Paper** by *Angew. Chem.*
15. Chen, C. Y.;[#] **Peng, H. J.**;[#] Hou, T. Z.;[#] Zhai, P. Y.; Li, B. Q.; Tang, C.; Zhu, W. C.; Huang, J. Q.; Zhang, Q.* A Quinonoid-Imine-Enriched Nanostructured Polymer Mediator for Lithium–Sulfur Batteries. ***Adv. Mater.*** 2017, 29, (23), 1606802. (IF = 21.950, Citations: **34**)
16. **Peng, H. J.**;[#] Liang, J. Y.;[#] Zhu, L.;[#] Huang, J. Q.; Cheng, X. B.; Guo, X. F.;* Ding, W. P.; Zhu, W. C.;* Zhang, Q.* Catalytic Self-Limited Assembly at Hard Templates: A Mesoscale Approach to Graphene Nanoshells for Lithium-Sulfur Batteries. ***ACS Nano*** 2014, 8, (11), 11280–11289. (IF = 13.709, Citations: **121**)
17. Zhang, Z. W.;[#] **Peng, H. J.**;[#] Zhao, M.; Huang, J. Q.* Heterogeneous/Homogeneous Mediators for High-Energy-Density Lithium–Sulfur Batteries: Progress and Prospects. *Adv. Funct. Mater.* **2018**, 28, (38), 1707536. (Inside Cover, IF = 13.325, Citations: **3**)
    - **Invited Review** for Special Issue "*Lithium–Sulfur Batteries*"
18. Zhu, L.;[#] **Peng, H. J.**;[#] Liang, J. Y.; Huang, J. Q.;* Chen, C. M.; Guo, X. F.; Zhu, W. C.;* Li, P.; Zhang, Q.* Interconnected carbon nanotube/graphene nanosphere scaffolds as free-standing paper electrode for high-rate and ultra-stable lithium–sulfur batteries. ***Nano Energy*** 2015, 11, 746–755. (IF = 13.120, Citations: **101**)
19. Rybarczyk, M. K.;[#] **Peng, H. J.**;[#] Tang, C.;[#] Lieder, M.; Zhang, Q.;* Titirici, M.* Porous carbon derived from rice husks as sustainable bioresources: insights into the role of micro- /mesoporous hierarchy in hosting active species for lithium–sulphur batteries. ***Green Chem.*** 2016, 18, (19), 5169–5179. (IF = 8.586, Citations: **49**)
20. Liu, X. Y.;[#] **Peng, H. J.**;[#] Zhang, Q.; Huang, J. Q.; Liu, X. F.; Wang, L.; He, X. M.; Zhu, W. C.; Wei, F. Hierarchical Carbon Nanotube/Carbon Black Scaffolds as Short- and Long-Range Electron Pathways with Superior Li-Ion Storage Performance. ***ACS Sustain. Chem. Eng.*** 2014, 2, (2), 200–206. (IF = 6.140, Citations: **28**)
21. Zhai, P. Y.;[#] **Peng, H. J.**;[#] Cheng, X. B.; Zhu, L.; Huang, J. Q.;* Zhu, W. C.;* Zhang, Q.* Scaled-up fabrication of porous-graphene-modified separators for high-capacity lithium–sulfur batteries. ***Energy Storage Mater.*** 2017, 7, 56–63. (Citations: **61**)
22. Kong, L.;[#] **Peng, H. J.**;[#] Huang, J. Q.;* Zhu, W. C.;* Zhang, G.; Zhang, Z. W.; Zhai, P. Y.; Sun, P. P.; Xie, J.; Zhang, Q.* Beaver-dam-like membrane: A robust and sulphifilic $MgBO_2(OH)$/CNT/PP nest separator in Li-S batteries. ***Energy Storage Mater.*** 2017, 8, 153–160. (Citations: **24**)
23. Qin, J. L.;[#] **Peng, H. J.**;[#] Huang, J. Q;* Zhang, X. Q.; Kong, L.; Xie, J.; Zhao, M.; Liu, R. P.;* Zhao, H. Y.; Zhang, Q.* Solvent-Engineered Scalable Production of Polysulfide-Blocking Shields to Enhance Practical Lithium–Sulfur Batteries. *Small Methods* **2018**, 2, (8), 1800100. (Citations: **2**)