



## Huanan DUAN

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### Education

- 2005-2009: **Doctor of Philosophy**, Materials Science and Engineering, Worcester Polytechnic Institute (USA)  
2002-2005: **Master**, Central South University (China)  
1998-2002: **Bachelor**, Central South University (China)

### Employment

- 2013-current: **Associate Professor**, School of Materials Science and Engineering (SMSE), Shanghai Jiao Tong University (SJTU), China  
2009-2012: **Postdoctoral Researcher**, Department of Materials Science and Engineering, Cornell University, USA

### Awards & Scholarships (selected)

- 2017: Excellent Master Student Advisor of SMSE, SJTU  
2016: SJTU Candlelight Award for Excellence in Teaching  
2014: SJTU SMC-Chen Xing Award for Excellence in Research

### Professional Participation and Service to Discipline (selected)

- 2014-current: Referee for Journal of Power Sources, Chemical Communications, Langmuir, Scientific Reports, Solid State Ionics, Journal of Physical Chemistry C, etc.

**Conference organising** – Chaired 2 conferences

### Presentations at National & International Symposia and Meetings

**Invited talks** – 9 (2 funded), **Invited seminars** – 4  
**Conference oral and poster presentations** – 27

### Refereed Journal Articles

Total journal publications = 55  
Total citations > 500, H-index = 13

### Ten Best Publications

1. **Huanan Duan\***, Hongpeng Zheng, Ying Zhou, Biyi Xu, Hezhou Liu, “*Stability of garnet-type Li ion conductors: An overview*”, accepted by Solid State Ionics. (IF: 2.438)
2. Biyi Xu, **Huanan Duan\***, Hezhou Liu, Chang-An Wang, Shengwen Zhong, “*Stabilization of garnet/liquid electrolyte interface using superbase additives for hybrid Li batteries*”, ACS Applied Materials & Interfaces 9 (2017) 21077-21082. (IF: 7.504)
3. Biyi Xu, Wenlong Li, **Huanan Duan\***, Haojing Wang, Yiping, Guo, Hua Li, Hezhou Liu, “*Li<sub>3</sub>PO<sub>4</sub>-added garnet-type Li<sub>6.5</sub>La<sub>3</sub>Zr<sub>1.5</sub>Ta<sub>0.5</sub>O<sub>12</sub> for Li-dendrite suppression*”, Journal of Power Sources 354 (2017) 68-73. (IF: 6.395, Citation: 3)
4. Biyi Xu, Bing Huang, Hezhou Liu, **Huanan Duan\***, Shengwen Zhong, Chang-An Wang, “*Influence of sintering additives on Li<sup>+</sup> conductivity and electrochemical property of perovskite-type Li<sub>3/8</sub>Sr<sub>7/16</sub>Hf<sub>1/4</sub>Ta<sub>3/4</sub>O<sub>3</sub>*”, Electrochimica Acta 234 (2017) 1-6. (IF: 6.395, Citation: 1)

5. Wenhao Xia, Biyi Xu, **Huanan Duan\***, Xiaoyi Tang, Yiping Guo, Hongmei Kang, Hua Li, Hezhou Liu, "Reaction mechanisms of lithium garnet pellets in ambient air: the effect of humidity and CO<sub>2</sub>", Journal of the American Ceramic Society (2017) 1-8. (IF: 2.841, Citation: 1)
6. Yutao Li, Biyi Xu, Henghui Xu, **Huanan Duan**, Xujie Lü, Sen Xin, Weidong Zhou, Leigang Xue, Gengtao Fu, Arumugam Manthiram, John B. Goodenough, "Hybrid polymer/garnet electrolyte with a small interfacial resistance for Li-ion batteries", Angewandte Chemie International Edition, 56 (2017) 753-756. (IF: 11.994, Citation: 22) **(ESI highly cited)**
7. Ran Tian, Weiqiang Wang, Yaolin Huang, **Huanan Duan\***, Yiping Guo, Hongmei Kang, Hua Li, Hezhou Liu, "3D composites of layered MoS<sub>2</sub> and graphene nanoribbons for high performance lithium-ion battery anodes", Journal of Materials Chemistry A, 4 (2016) 13148-13154. (IF: 8.867, Citation: 7)
8. Wenhao Xia, Biyi Xu, **Huanan Duan\***, Yiping Guo, Hongmei Kang, Hua Li, Hezhou Liu, "Ionic conductivity and air stability of Al-doped Li<sub>7</sub>La<sub>3</sub>Zr<sub>2</sub>O<sub>12</sub> sintered in alumina and Pt crucibles", ACS Applied Materials & Interfaces, 8 (2016) 5335-5342. (IF: 7.504, Citation: 26)
9. Ran Tian, Yangyang Zhang, Zhihang Chen, **Huanan Duan\***, Biyi Xu, Yiping Guo, Hongmei Kang, Hua Li, Hezhou Liu, "The effect of annealing on a 3D SnO<sub>2</sub>/graphene foam as an advanced lithium-ion battery anode", Scientific Reports, 6 (2016) 19195. (IF: 4.259, Citation: 32)
10. Biyi Xu, **Huanan Duan\***, Wenhao Xia, Yiping Guo, Hongmei Kang, Hua Li, Hezhou Liu, "Multistep sintering to synthesize fast lithium garnets", Journal of Power Sources 302 (2016) 291-297. (IF: 6.395, Citation: 7)

### **Brief Description of Expertise**

Dr. Duan's expertise is at the interface of solid state chemistry and electrochemistry, two sub-disciplines inside materials chemistry. He is a leading battery scientist with abundant experience in designing and fabricating advanced materials for Li-ion batteries. In the past few years, Dr. Duan's group is dedicated to investigation of solid Li-ion electrolyte and nanostructured composite anode materials, in which he is keen to set up a collaboration. Relevant work has been published in leading journals such as Angewandte Chemie International Edition, Journal of Power Sources, ACS Applied Materials & Interfaces, Journal of Material Chemistry A, etc.

### **Research Students and Teaching**

Group current composition – 3 PhD, 4 Master and 2 Undergraduate students

Teaching sophomore level courses, e.g. Materials Chemistry, and graduate level course, e.g. Powder Processing.

<b>Description</b> (all named investigators on any proposal or grant/ project/ fellowship in which a Participant is/was involved, project title, source of support and scheme)	<b>First year</b>	<b>Duration (years)</b>	<b>Total Value (RMB)</b>
X Gao, <b>H Duan</b> , X Xiang, High-throughput characterization based on synchrotron micro-beam, MOST, 2017YFB0701901	2017	4	RMB5,340,000
<b>H Duan</b> , Synthesis and ion conduction study of lithium garnet thin-films. NSFC, 11304198	2014	3	RMB280,000
<b>H. Duan</b> , High throughput synthesis and characterization of solid electrolyte, and its interface with Li metal, SAST-SJTU joint fund, USCAST-2015-40	2015	2	RMB200,000
<b>H. Duan</b> , Development of novel solid Li-ion electrolyte, SJTU, 15X190030002	2015	2	RMB300,000