

CURRICULUM VITAE FOR XIULIN FAN

Dr. Xiulin Fan

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Education and Training:

- 2017.4 – now Assistant Research Scientist
Department of Chemical & Biomolecular Engineering, University
of Maryland, College Park, USA
- 2014.2 – 2017.3 Postdoctoral Research Associate
Department of Chemical & Biomolecular Engineering, University
of Maryland, College Park, USA
- 2012.6-2014.2 Post-doctor
Department of Materials Science and Engineering, Zhejiang
University, China
- 2007.9 - 2012.6 Ph.D. in Materials Science
Department of Materials Science and Engineering, Zhejiang
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- 2003.9-2007.6 B.S. in Materials Science and Engineering
Department of Materials Science and Engineering, Zhejiang
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Dr. Fan has expertise and extensive experience in the development of high energy storage areas (such as Li ion battery, Na ion battery, and hydrogen storage materials, etc). Dr Fan has published more than 120

peer-reviewed papers in top-journals (*Science, Nature Mater., Nature Nano., Nature Commun., Energy & Environ. Sci.* etc.) with an H-index of 30 (Google scholar). His studies were highlighted by Science, Nature Mater., Nature Nano., Nature Commun., ScienceDaily, AAAS and EureAlert, Engineering 360, C & EN, Materialsviews etc. Dr. Fan holds 8 issued Chinese patents, and 3 pending US patent as well.

Synergistic Activities

Guest editor: Focused issue for *Journal of Nanomaterials* (IF = 1.8) on “Functional Nanomaterials for Renewable Energy and Sustainability (FNRE)” (Co-editor: Dr. Xuezhong Xiao, and Dr. Zheng Zhang).

Selected Peer-Reviewed Journal Publications (Total >120), H-index 30 (Google Scholar):

- [1]. **X. Fan,**[†] L. Chen,[†] O. Borodin, X. Ji, J. Chen, S. Hou, T. Deng, J. Zheng, C. Yang, S. Liou, K. Amine, K. Xu, C. Wang, Non-flammable Electrolyte Enables Li-Metal Batteries with Aggressive Cathode Chemistries, *Nature Nanotechnology*, 2018, In press.
- [2]. **X. Fan,**[†] E. Hu,[†] X. Ji, Y. Zhu, F. Han, S. Hwang, J. Liu, S. Bak, Z. Ma, T. Gao, S.-C. Liou, J. Bai, X.-Q. Yang, Y. Mo, K. Xu, D. Su, C. Wang, High Energy-Density and Reversibility of Iron Fluoride Cathode Enabled Via an Intercalation-Extrusion Reaction, *Nature Communications*, 2018, 9 (1), 2324
- [3]. T. Deng,[†] **X. Fan,**[†] J. Chen, L. Chen, C. Luo, X. Zhou, J. Yang, S. Zheng, C. Wang. Layered P2-Type K_{0.65}Fe_{0.5}Mn_{0.5}O₂ Microspheres as Superior Cathode for High-Energy Potassium-Ion Batteries, *Advanced Functional Materials*, 2018, 1800219. Accepted. (Co-first author, equal contribution).
- [4]. J. Zheng,[†] **X. Fan,**[†] G. Ji, H. Wang, S. Hou, K.C. DeMella, S.R. Raghavan, J. Wang, K. Xu, C. Wang. Manipulating electrolyte and solid electrolyte interphase to enable safe and efficient Li-S batteries. *Nano Energy*, 2018, 50, 431-440. Accepted. (Co-first author, equal contribution).
- [5]. **X. Fan,**[†] F. Wang,[†] X. Ji R. Wang, T. Gao, S. Hou, J. Chen, T. Deng, C. Luo, X. Li, L. Wang, C. Wang, A Universal Organic Cathode for Ultrafast Li - and

- Multivalent Metal Batteries, *Angewandte Chemie*, 2018, 130, 7264-7268..
- [6]. J. Chen[†] **X. Fan**,[†] X. Ji, T. Gao, S. Hou, X. Zhou, L. Wang, F. Wang, C. Yang, L. Chen, and C. Wang, Intercalation of Bi nanoparticles into graphite enables ultra-fast and ultra-stable anode material for Sodium-ion batteries, *Energy & Environmental Science*, 2018, 2018, 11, 1218-1225. (Co-first author, equal contribution).
- [7]. **X. Fan**,[†] J. Yue,[†] F Han, J. Chen, T. Deng, X. Zhou, S. Hou, C. Wang, "High Performance All-Solid-State Na-S Battery Enabled by Casting-Annealing Technology" *ACS Nano* 2018, 12, 4, 3360-3368.
- [8]. T. Deng,[†] **X. Fan**,[†] C. Luo, J. Chen, L. Chen, S. Hou, N. Eidson, X. Zhou, C. Wang. Self-templated Formation of P2-type $K_{0.6}CoO_2$ Microspheres for High Reversible Potassium-ion Batteries. *Nano Letter*, 2018 18, 2, 1522-1529. (Co-first author, equal contribution).
- [9]. **X. Fan**, L. Chen, X. Ji, T. Deng, S. Hou, J. Chen, J. Zheng, F. Wang, J. Jiang, K. Xu, C. Wang. Highly Fluorinated Interphases Enable High-Voltage Li-Metal Batteries. *Chem.* 2018, 4, 174-185.
- [10]. X Huang, X Xiao,* X Wang, Z Yao, C Wang,* **X Fan**,* L Chen*. Highly synergetic catalytic mechanism of Ni@ g-C₃N₄ on the superior hydrogen storage performance of Li-Mg-BH system. *Energy Storage Materials*, 2018, 13, 199-206. (Corresponding author)
- [11]. C. Lin,[†] **X. Fan**,[†] A. Pearse, S. C. Liou, K. Gregorczyk, M. Leskes, C. Wang, S. B. Lee, G. Rubloff, M. Noked, "Highly Reversible Conversion-type FeOF Composite Electrode with Extended Lithium Insertion by ALD LiPON protection," *Chem. Mater.*, 2017, 29 (20), 8780-8791. (Co-first author, equal contribution).
- [12]. F. Wang,[†] **X. Fan**,[†] T. Gao, W. Sun, Z. Ma, C. Yang, F. Han, K. Xu and C. Wang, "High-Voltage Aqueous Magnesium-Ion Batteries," *ACS Central Science*, 2017, 3 (10), pp 1121–1128. (Co-first author, equal contribution).
- [13]. **X. Fan**, T. Gao, C. Luo, F. Wang, J. Hu, C. Wang, Superior reversible tin phosphide-carbon spheres for sodium ion battery anode, *Nano Energy* 38 (2017) 350–357.
- [14]. **X Fan**, Y Zhu, C Luo, L Suo, Y Lin, T Gao, K Xu, C Wang. Pomegranate-Structured Conversion-Reaction Cathode with a Built-in Li Source for High-Energy Li-Ion Batteries. *ACS nano*, 2016, 10, 5567-5577.
- [15]. **X Fan**, C Luo, J Lamb, Y Zhu, K Xu, C Wang. PEDOT encapsulated FeOF

- nanorod cathodes for high energy lithium-ion batteries. *Nano letters*, 2015, 15, 7650-7656.
- [16]. **X Fan**, J Mao, Y Zhu, C Luo, L Suo, T Gao, F Han, SC Liou, C Wang. Superior Stable Self-Healing SnP₃ Anode for Sodium-Ion Batteries. *Adv. Energy Mater.*, 2015, 5 (18), DOI: 10.1002/aenm.201500174.
- [17]. **X Fan**, J Shao, X Xiao, X Wang, S Li, H Ge, L Chen. SnLi_{4.4} nanoparticles encapsulated in carbon matrix as high performance anode material for lithium-ion batteries. *Nano Energy*, 2014, 9, 196-203.
- [18]. **X Fan**, X Xiao, J Shao, L Zhang, S Li, H Ge, Q Wang, L Chen. Size effect on hydrogen storage properties of NaAlH₄ confined in uniform porous carbons. *Nano Energy*, 2013, 2, 995-1003.
- [19]. **X Fan**, Y Zhu, C Luo, T Gao, L Suo, SC Liou, K Xu, C Wang. In situ lithiated FeF₃/C nanocomposite as high energy conversion-reaction cathode for lithium-ion batteries. *J. Power Sources*, 2016, 307, 435-442.
- [20]. **X Fan**, J Shao, X Xiao, X Wang, S Li, H Ge, L Chen, C Wang. In situ synthesis of SnO₂ nanoparticles encapsulated in micro/mesoporous carbon foam as a high-performance anode material for lithium ion batteries. *J. Mater. Chem. A*, 2014, 2, 18367-18374.
- [21]. **X Fan**, J Shao, X Xiao, L Chen, X Wang, S Li, H Ge. Carbon encapsulated 3D hierarchical Fe₃O₄ spheres as advanced anode materials with long cycle lifetimes for lithium-ion batteries. *J. Mater. Chem. A*, 2014, 2 (35), 14641-14648.
- [22]. **X Fan**, X Xiao, L Chen, X Wang, S Li, H Ge, Q Wang. High catalytic efficiency of amorphous TiB₂ and NbB₂ nanoparticles for hydrogen storage using the 2LiBH₄-MgH₂ system. *J. Mater. Chem. A*, 2013, 1, 11368-11375.
- [23]. **X Fan**, X Xiao, L Chen, L Zhang, J Shao, S Li, H Ge, Q Wang. Significantly improved hydrogen storage properties of NaAlH₄ catalyzed with Ce-based nanoparticles. *J. Mater. Chem. A*, 2013, 1, 9752-9759;
- [24]. **X Fan**, X Xiao, L Chen, J Shao, L Zhang, S Li, H Ge, Q Wang. Superior Catalytic Effects of Transition Metal Boride Nanoparticles on the Reversible Hydrogen Storage Properties of Li-Mg-B-H System. *Particle & Particle Systems Characterization*, 2014, 31, 195-200.
- [25]. **X Fan**, X Xiao, L Chen, S Li, Q Wang. Enhanced hydriding- dehydriding performance of CeAl₂-doped NaAlH₄ and the evolvement of Ce-containing species in the cycling. *J. Phys. Chem. C*, 2011, 115: 2537-2543.

- [26]. **X Fan**, X Xiao, L Chen, L Han, S Li, H Ge, Q Wang. Thermodynamics, kinetics and modeling investigation on the dehydrogenation of CeAl₄-doped NaAlH₄ hydrogen storage material, *J. Phys. Chem. C*, 2011, **115**: 22680-22687.
- [27]. **X Fan**, X Xiao, L Chen, L Han, S Li, H Ge, Q Wang. Hydriding-dehydrating kinetics and the microstructure of La- and Sm-doped NaAlH₄ prepared via direct synthesis method. *Int. J. Hydrogen Energy*, 2011, **36**: 10861-10869.
- [28]. **X Fan**, X Xiao, L Chen, S Li, H Ge, Q Wang. Direct synthesis and hydrogen storage behaviors of nanocrystalline Na₂LiAlH₆. *J. Mater. Sci.*, 2011, **46**: 3314-3318.
- [29]. **X Fan**, X Xiao, L Chen, S Li, Q Wang. Investigation on the nature of active species in the CeCl₃-doped sodium alanate system. *J. Alloys Compd.*, 2011, **509S**: S750-S753.
- [30]. **X Fan**, X Xiao, L Chen, K Yu, Z Wu, S Li, Q Wang. Active species of CeAl₄ in the CeCl₃-doped sodium aluminium hydride and its enhancement on reversible hydrogen storage performance. *Chem. Commun.*, **2009**: 6857-6859.
- [31]. **X Fan**, X Xiao, J Hou, Z Zhang, Y Liu, Z Wu, C Chen, Q Wang, L Chen. Reversible hydrogen storage behaviors and microstructure of TiC-doped sodium aluminum hydride. *J. Mater. Sci.*, 2009, **44**: 4700-4704.
- [32]. F. Han, J. Yue, C. Chen, N. Zhao, **X. Fan**, Z. Ma, T. Gao, F. Wang, X. Guo and C. Wang, Interphase Engineering Enabled All-Ceramic Lithium Battery, *Joule*, Accepted.
- [33]. S. Zhang, **X. Fan**, C. Wang, Efficient and stable cycling of lithium metal enabled by a conductive carbon primer layer. *Sustainable Energy Fuels*, 2018, DOI: 10.1039/C7SE00391A.
- [34]. T. Gao, X. Ji, S. Hou, **X. Fan**, X. Li, C. Yang, F. Han, F. Wang, J. Jiang, K. Xu, C. Wang, "Thermodynamics and Kinetics of Sulfur Cathode during Discharge in MgTFSI₂-DME Electrolyte" *Advanced Materials*, 2017, 1704313.
- [35]. C. Yang, X. Ji, **X. Fan**, T. Gao, L. Suo, F. Wang, W. Sun, J. Chen, L. Chen, F. Han, L. Miao, K. Xu, K. Gerasopoulos and C. Wang, Flexible Aqueous Li-ion Battery with High Energy and Power Densities, *Advanced Materials*, 2017, 1701972.
- [36]. Chao Luo, **Xiulin Fan**, Zhaohui Ma, Tao Gao, Chunsheng Wang, "Self-healing Chemistry between Organic Material and Binder for Stable Sodium Ion Batteries," *Chem*, 2017, DOI: <http://dx.doi.org/10.1016/j.chempr.2017.09.004>.

- [37]. X. Li, T. Gao, F. Han, Z. Ma, **X. Fan**, S. Hou, N. Eidson, W. Li, C. Wang, "Reducing Mg Anode Overpotential via Ion Conductive Surface Layer Formation by Iodine Additive," *Advanced Energy Materials*, 2017, 1701728.
- [38]. C. Yang, J. Chen, T. Qing, J. Chen, **X. Fan**, W. Sun, A. v. Cresce, M. S. Ding, M.A. Schroeder, N. Eidson, C. Wang, K. Xu, "4.0 V Aqueous Li-ion Batteries," *Joule*. 1(2017) 122–132.
- [39]. J. Yue, F. Han, **X. Fan**, X. Zhu, Z. Ma, J. Yang, C. Wang, Chunsheng, "High-Performance All-Inorganic Solid-State Sodium-Sulfur Battery" *ACS Nano*, 2017, 11 (5), 4885–4891.
- [40]. Y. Zhu, T. Gao, **X. Fan**, F. Han, and C. Wang, *Electrochemical Techniques for Intercalation Electrode Materials in Rechargeable Batteries*, *Acc. Chem. Res.*, 2017, 50 (4), 1022–1031.
- [41]. L. Zhang, L. Chen, **X. Fan**, X. Xiao, J. Zheng, X. Huang. Enhanced hydrogen storage properties of MgH₂ with numerous hydrogen diffusion channels provided by Na₂Ti₃O₇ nanotubes. *J. Mater. Chem. A*, 2017, 5, 6178-6185.
- [42]. X. Huang, X. Xiao, W. Zhang, **X. Fan**, L. Zhang, C. Cheng, S. Li, H. Ge, Q. Wang, L. Chen. Transition metal (Co, Ni) nanoparticles wrapped with carbon and their superior catalytic activities for the reversible hydrogen storage of magnesium hydride. *Phys. Chem. Chem. Phys.*, 2017, 19, 4019-4029.
- [43]. H Tian, T Gao, X Li, X Wang, C Luo, **X. Fan**, C Yang, L Suo, Z Ma, W Han, C.S. Wang. High power rechargeable magnesium/iodine battery chemistry. *Nature Commun.*, 2017, 8, 14083.
- [44]. Y Jiang, **X. Fan**, X Xiao, X Huang, M Liu, S Li, H Ge, L Chen. La₂O₃-modified highly dispersed AuPd alloy nanoparticles and their superior catalysis on the dehydrogenation of formic acid. *Int. J. Hydrogen Energy*, 2017, <http://dx.doi.org/10.1016/j.ijhydene.2017.01.078>.
- [45]. Y Zhu, SH Choi, **X. Fan**, J Shin, Z Ma, M.R. Zachariah, J.W. Choi, C. Wang Recent Progress on Spray Pyrolysis for High Performance Electrode Materials in Lithium and Sodium Rechargeable Batteries. *Adv. Energy Mater.*, 2016, 10.1002/aenm.201601578.
- [46]. X Wang, T Gao, **X. Fan**, F Han, Y Wu, Z Zhang, J Li, C. Wang Tailoring Surface Acidity of Metal Oxide for Better Polysulfide Entrapment in Li-S Batteries. *Adv. Funct. Mater.* 2016, 26, 7164-7169.
- [47]. T Gao, X Li, X Wang, J Hu, F Han, **X. Fan**, L Suo, AJ Pearse, SB Lee, GW

- Rubloff, KJ Gaskell, M Noked, C Wang, A Rechargeable Al/S Battery with an Ionic-Liquid Electrolyte. *Angew. Chem.*, 2016, 128, 10052-10055.
- [48]. F Han, J Yue, **X Fan**, T Gao, C Luo, Z Ma, L Suo, C Wang, High-Performance All-Solid-State Lithium-Sulfur Battery Enabled by a Mixed-Conductive Li₂S Nanocomposite. *Nano letters* 16, 4521-4527.
- [49]. L Suo, O Borodin, W Sun, **X Fan**, C Yang, F Wang, T Gao, Z Ma, M Schroeder, A von Cresce, SM Russell, M Armand, A. Angell, K Xu, C Wang. Advanced High-Voltage Aqueous Lithium-Ion Battery Enabled by “Water-in-Bisalt” Electrolyte. *Angew. Chem.*, 2016, 128, 7252-7257.
- [50]. J Mao, **X Fan**, C Luo, C Wang. Building Self-Healing Alloy Architecture for Stable Sodium-Ion Battery Anodes: A Case Study of Tin Anode Materials. *ACS applied materials & interfaces*, 2016, 8, 7147-7155.
- [51]. C Luo, Y Zhu, O Borodin, T Gao, **X Fan**, Y Xu, K Xu, C Wang. Activation of Oxygen-Stabilized Sulfur for Li and Na Batteries. *Adv. Funct. Mater.*, 2016, 26, 745-752.
- [52]. F Wang, Y Lin, L Suo, **X Fan**, T Gao, C Yang, F Han, Y Qi, K Xu, C Wang. Stabilizing high voltage LiCoO₂ cathode in aqueous electrolyte with interphase-forming additive. *Energy & Environmental Science*, 2016, 9, 3666-3673.
- [53]. X Huang, X Xiao, J Shao, B Zhai, **X Fan**, C Cheng, S Li, H Ge, Q Wang, L Chen. Building robust architectures of carbon-wrapped transition metal nanoparticles for high catalytic enhancement of the 2LiBH₄-MgH₂ system for hydrogen storage cycling performance. *Nanoscale*, 2016, 8, 14898-14908.
- [54]. M Li, **X Fan**, X Xiao, X Huang, Y Jiang, L Chen. Ternary perovskite nickel titanate/reduced graphene oxide nano-composite with improved lithium storage properties. *RSC Advances*, 2016, 6, 61312-61318.
- [55]. L Suo, F Han, **X Fan**, H Liu, K Xu, C Wang. “Water-in-Salt” electrolytes enable green and safe Li-ion batteries for large scale electric energy storage applications. *J. Mater. Chem. A*, 2016, 4, 6639-6644.
- [56]. Y Jiang, **X Fan**, X Xiao, T Qin, L Zhang, F Jiang, M Li, S Li, H Ge, L Chen. Novel AgPd hollow spheres anchored on graphene as an efficient catalyst for dehydrogenation of formic acid at room temperature. *J. Mater. Chem. A*, 2016, 4, 657-666.

- [57]. Y Zhu, **X Fan**, L Suo, C Luo, T Gao, C Wang. Electrospun FeS₂@ carbon fiber electrode as a high energy density cathode for rechargeable lithium batteries. *ACS nano*, 2015, 10, 1529-1538.
- [58]. L Suo, O Borodin, T Gao, M Olguin, J Ho, **X Fan**, C Luo, C Wang, K Xu. “Water-in-salt” electrolyte enables high-voltage aqueous lithium-ion chemistries. *Science*, 2015, 350, 938-943.
- [59]. T Gao, M Noked, AJ Pearse, E Gillette, **X Fan**, Y Zhu, C Luo, L Suo, MA Schroeder, K Xu, SB Lee, GW Rubloff, C Wang. Enhancing the reversibility of Mg/S battery chemistry through Li⁺ mediation. *J. Am. Chem. Soc.*, 2015, 137, 12388-12393.
- [60]. J Shao, X Xiao, **X Fan**, X Huang, B Zhai, S Li, H Ge, Q Wang, L Chen. Enhanced hydrogen storage capacity and reversibility of LiBH₄ nanoconfined in the densified zeolite-templated carbon with high mechanical stability. *Nano Energy*, 2015, 15, 244-255.
- [61]. Y Zhu, L Suo, T Gao, **X Fan**, F Han, C Wang. Ether-based electrolyte enabled Na/FeS₂ rechargeable batteries. *Electrochemistry Communications*, 2015, 54, 18-22.
- [62]. J Wang, X Meng, **X Fan**, W Zhang, H Zhang, C Wang. Scalable Synthesis of Defect Abundant Si Nanorods for High-Performance Li-Ion Battery Anodes. *ACS nano*, 2015, 9, 6576-6586.
- [63]. J Wang, C Luo, J Mao, Y Zhu, **X Fan**, T Gao, AC Mignerey, C Wang. Solid-state fabrication of SnS₂/C nanospheres for high-performance sodium ion battery anode. *ACS applied materials & interfaces*, 2015, 7, 11476-11481.
- [64]. C Luo, J Wang, **X Fan**, Y Zhu, F Han, L Suo, C Wang. Roll-to-roll fabrication of organic nanorod electrodes for sodium ion batteries. *Nano Energy*, 2015, 13, 537-545.
- [65]. L Suo, Y Zhu, F Han, T Gao, C Luo, **X Fan**, YS Hu, C Wang. Carbon cage encapsulating nano-cluster Li₂S by ionic liquid polymerization and pyrolysis for high performance Li–S batteries. *Nano Energy*, 2015, 13, 467-473.
- [66]. L Zhang, X Xiao, C Xu, J Zheng, **X Fan**, J Shao, S Li, H Ge, Q Wang, L Chen. Remarkably Improved Hydrogen Storage Performance of MgH₂ Catalyzed by Multivalence NbH_x Nanoparticles. *J. Phys. Chem. C*, 2015, 119, 8554-8562.
- [67]. Y Zhu, Y Wen, **X Fan**, T Gao, F Han, C Luo, SC Liou, C Wang. Red phosphorus–single-walled carbon nanotube composite as a superior anode for

- sodium ion batteries. *ACS nano*, 2015, 9, 3254-3264.
- [68]. J Mao, C Luo, T Gao, **X Fan**, C Wang. Scalable synthesis of Na₃V₂(PO₄)₃/C porous hollow spheres as a cathode for Na-ion batteries. *J. Mater. Chem. A*, 2015, 3, 10378-10385.
- [69]. C Luo, J Wang, L Suo, J Mao, **X Fan**, C Wang. In situ formed carbon bonded and encapsulated selenium composites for Li–Se and Na–Se batteries. *J. Mater. Chem. A*, 2015, 3, 555-561.
- [70]. L Zhang, L Chen, X Xiao, **X Fan**, J Shao, S Li, H Ge, Q Wang. Fluorographene nanosheets enhanced hydrogen absorption and desorption performances of magnesium hydride. *Int. J. Hydrogen Energy*, 2014, 39 (24), 12715-12726.
- [71]. J Shao, X Xiao, **X Fan**, L Zhang, S Li, H Ge, Q Wang, L Chen. Low-temperature reversible hydrogen storage properties of LiBH₄: a synergetic effect of nanoconfinement and nanocatalysis. *J. Phys. Chem. C*, 2014, 118 (21), 11252-11260.
- [72]. X Xiao, S Wang, **X Fan**, C Xu, J Sun, Q Wang, L Chen. Improved de/hydrogenation properties and favorable reaction mechanism of CeH₂ + KH co-doped sodium aluminum hydride. *Int. J. Hydrogen Energy*, 2014, 39 (12), 6577-6587.
- [73]. Z Chen, X Xiao, L Chen, **X Fan**, L Liu, S Li, H Ge, Q Wang. Influence of Ti super-stoichiometry on the hydrogen storage properties of Ti_{1+x}Cr_{1.2}Mn_{0.2}Fe_{0.6} (x= 0-0.1) alloys for hybrid hydrogen storage application. *J. Alloys Compd.*, 2014, 585, 307-311.
- [74]. X Xiao, S Wang, G Tu, L Zhang, **X Fan**, S Li, H Ge, Q Wang, L Chen. Enhanced reversible hydrogen storage performance of NbCl₅ doped 2LiH-MgB₂ composite. *Int. J. Hydrogen Energy*, 2014, 39, 2132-2141.
- [75]. L Zhang, L Chen, X Xiao, Z Chen, S Wang, **X Fan**, S Li, H Ge, Q Wang. Superior dehydrogenation performance of nanoscale lithium borohydride modified with fluorographite. *Int. J. Hydrogen Energy*, 2014, 39, 896-904.
- [76]. L Zhang, X Xiao, **X Fan**, S Li, H Ge, Q Wang, L Chen. Fast hydrogen release under moderate conditions from NaBH₄ destabilized by fluorographite. *RSC Advances*, 2014, 4, 2550-2556.
- [77]. J Shao, X Xiao, **X Fan**, L Chen, H Zhu, S Yu, Z Gong, S Li, H Ge, Q Wang. A low temperature mechanochemical synthesis and characterization of amorphous

- Ni-B ultrafine nanoparticles. *Mater. Lett.*, 2013, **109**: 203-206.
- [78]. X Xiao, L Zhang, **X Fan**, L Han, J Shao, S Li, H Ge, Q Wang, L Chen. Synergetic effect of in situ formed nano NbH and LiH_{1-x}F_x for improving reversible hydrogen storage properties of the Li-Mg-B-H system. *J. Phys. Chem. C*, 2013, **117**: 12019-12025.
- [79]. Z Chen, X Xiao, L Chen, **X Fan**, L Liu, S Li, H Ge, Q Wang. Development of Ti-Cr-Mn-Fe based alloys with high hydrogen desorption pressures for hybrid hydrogen storage vessel applications. *Int. J. Hydrogen Energy*, 2013, **38**: 12803-12810.
- [80]. J Shao, X Xiao, L Chen, **X Fan**, L Han, S Li, H Ge, Q Wang. Enhanced hydriding-dehydriding performance of a 2LiH-MgB₂ composite by the catalytic effects of Ni-B nanoparticles. *J. Mater. Chem. A*, 2013, **1**: 10184-10192.
- [81]. Y Li, X Xiao, L Chen, L Han, J Shao, **X Fan**, S Li, Q Wang. Effects of Fluoride Additives on the Hydrogen Storage Performance of 2LiBH₄-Li₃AlH₆ Destabilized System. *J. Phys. Chem. C*, 2012, **116**, 22226-22230.
- [82]. X Xiao, J Shao, L Chen, H Kou, **X Fan**, S Deng, L Zhang, S Li, H Ge, Q Wang. Effects of NbF₅ addition on the de/rehydrogenation properties of 2LiBH₄/MgH₂ hydrogen storage system. *Int. J. Hydrogen Energy*, 2012, **37**, 13147-13154.
- [83]. J Shao, X Xiao, L Chen, **X Fan**, S Li, H Ge, Q Wang. Enhanced hydriding-dehydriding performance of 2LiBH₄-MgH₂ composite by the catalytic effects of transition metal chlorides. *J. Mater. Chem.*, 2012, **22**, 20764-20772.
- [84]. L Chen, **X Fan**, X Xiao, J Xue, S Li, H Ge, C Chen. Influence of TiC catalyst on the absorption/desorption behaviors and microstructures of sodium aluminum hydride. *Trans. Nonferrous Met. Soc. China*, 2011, **21**: 1297-1302.
- [85]. X Xiao, K Yu, **X Fan**, Z Wu, X Wang, C Chen, Q Wang, L Chen*. Synthesis and hydriding/dehydriding properties of nanosized sodium alanates prepared by reactive ball-milling. *Int. J. Hydrogen Energy*, 2011, **36**: 539-548.
- [86]. X Xiao, C Li, L Chen, **X Fan**, H Kou, Q Wang. Synthesis and dehydrogenation of CeAl₄-doped calcium alanate. *J. Alloys Compd.*, 2011, **509S**: S743-S746.
- [87]. X Xiao, **X Fan**, K Yu, S Li, C Chen, Q Wang, L Chen. Catalytic mechanism of new TiC-doped sodium alanate for hydrogen storage. *J. Phys. Chem. C*, 2009, **113**: 20745-20751.
- [88]. X Xiao, L Chen, **X Fan**, X Wang, C Chen, Y Lei, Q Wang. Direct synthesis of

nanocrystalline NaAlH₄ complex hydride for hydrogen storage. *Appl. Phys. Lett.*, 2009, **94**: 041907.