



## 闫二虎 副教授 (yeh@guet.edu.cn)

桂林电子科技大学材料学院--硕士研究生导师

研究领域：合金定向凝固、多元合金凝固理论和新型能源材料

### 个人简介

闫二虎，男，博士，副教授。2014年获哈尔滨工业大学材料加工学科博士学位，毕业后在桂林电子科技大学工作。自攻读博士学位以来一直从事合金定向凝固理论和新型能源材料方面的研究，主持在研国家自然科学基金2项，省部级基金项目2项，参与了国家自然科学基金面上项目3项，参与设计，安装，调试并负责维护高真空双区电阻加热定向凝固系统和氢分离膜渗氢性能测试系统，近三年在International Journal of Hydrogen Energy, Journal of Crystal Growth, International Journal of Materials Research, 金属学报等刊物上发表SCI文章 26篇，影响因子之和达30。代表性论文如下：

(1)Erhu Yan, Haoran Huang, Shuhui Sun, Yongjin Zou, Hailiang Chu, Lixian Sun. Development of Nb-Ti-Co alloy for high-performance hydrogen separating membrane. Journal of Membrane Science 565 (2018) 411-424.

(2)Erhu Yan, Haoran Huang, Ruonan Min, Ping Zhao, R. Devesh K. Misra, Pengru Huang, Fen Xu, Lixian Sun. Effect of Pd overlayer and mixed gases on hydrogen permeation of Pd/Nb<sub>30</sub>Hf<sub>35</sub>Co<sub>35</sub>/Pd composite membranes. International Journal of Hydrogen Energy 43 (2018) 14466-14477.

(3)Xinzhong Li, Erhu Yan, Markus Rettenmayr, Dongmei Liu, Yanqing Su, Jingjie Guo. International Journal of Hydrogen Energy, 2014, 39: 9366-9374

(4)Erhu Yan, Xinzhong Li, Dongmei Liu, Yanqing Su, Jingjie Guo, Hengzhi Fu. Journal of Crystal Growth, 2014, 391: 78-84.

欢迎全国各地的同学们报考研究生！

### 教育背景

分别于2011年和2014年在哈尔滨工业大学材料加工专业获得工学硕士、博士学位。

2018.11-2019.11 加拿大（魁北克）国家科学研究院-能源、材料研究所 访问学者。

### 工作经历

2014/7 - 至今，桂林电子科技大学，材料科学与工程学院，副教授，硕士生导师

### 学术活动

近年来主持国家自然科学基金项目2项（70万），主持省部级项目3项（20万）；参与国家973计划项目（300万）、863计划项目（180万）、国家自然科学基金重点项目（150万）、国家自然科学基金面上项目、国家自然科学基金联合项目、中国科学院知识创新工程重要方向项目、国家航天集团项目、广西重点实验室项目、广西协同创新中心项目、广西工程技术中心项目、广西人才小高地项目、广西自然科学基金项目、辽宁省科学技术基金项目、广东省-中科院联合基金项目、桂林市科技开发项目等10余项；

在《Journal of Membrane Science》《Journal of Materials Chemistry A》《Biosensors & Bioelectronics》《Crystal Growth & Design》《Journal of Physical Chemistry C》《Dalton Transactions》《International Journal of Hydrogen Energy》等国内外重要学术期刊发表学术论文30余篇。

### 教学信息

讲述本科生课程6门，指导硕士研究生5人、博士研究生3人。

担任课程：

工程图学及CAD基础（本科生）

材料成型设备概论（本科生）

热处理工艺及设备（本科生）

电磁学（本科生）

## 主要论文

- (1) Erhu Yan, Haoran Huang, Shuhui Sun, Yongjin Zou, Hailiang Chu, Lixian Sun. Development of Nb-Ti-Co alloy for high-performance hydrogen separating membrane. *Journal of Membrane Science* 565 (2018) 411-424.
- (2) Erhu Yan, Haoran Huang, Ruonan Min, Fen Xu, Ping Zhao, Yongjin Zou, Hailiang Chu, Huanzhi Zhang, Lixian Sun. Design and characterizations of novel Nb-ZrCo hydrogen permeation alloys for hydrogen separation applications. *Materials Chemistry and Physics*, 2018, 212,282-291.
- (3) Erhu Yan, Lixian Sun, Fen Xu, Daming Xu, Shujun Qiu, Cuili Xiang, Huanzhi Zhang, Yixin Sun. Changes in microstructure, solidification path and hydrogen permeability of Nb-Hf-Co alloy by adjusting Hf/Co ratio. *International Journal of Hydrogen Energy*, 2016, 41: 1391-1400.
- (4) Erhu Yan, Lixian Sun, Fen Xu, Yongjin Zou, Hailiang Chu, Huanzhi Zhang, Yixin Sun. Changes in microstructures and hydrogen permeability of Nb<sub>30</sub>Hf<sub>35</sub>Co<sub>35</sub> eutectic alloy membranes by annealing. *International Journal of Hydrogen Energy*, 2016, 41: 1401-1407.
- (5) Erhu Yan, Xinzhong Li, Markus Rettenmayr, Dongmei Liu, Yanqing Su, Jingjie Guo, Daming Xu, Hengzhi Fu. Design of hydrogen permeable Nb-Ni-Ti alloys by correlating the microstructures, solidification paths and hydrogen permeability. *International Journal of Hydrogen Energy*, 2014, 39: 3505-3516.
- (6) Erhu Yan, Xinzhong Li, Dongmei Liu, Markus Rettenmayr, Yanqing Su, Jingjie Guo. Nb-HfCo alloys with pronounced high hydrogen permeability: a new family of metallic hydrogen permeation membranes. *International Journal of Hydrogen Energy*, 2014, 39: 8385-8389.
- (7) Xinzhong Li, Erhu Yan, Markus Rettenmayr, Dongmei Liu, Yanqing Su, Jingjie Guo. Hydrogen permeation behavior of Nb<sub>30</sub>Ti<sub>35</sub>Ni<sub>35-x</sub>Cox (x= 0 ...35) alloys containing high fractions of eutectic. *International Journal of Hydrogen Energy*, 2014, 39: 9366-9374.
- (8) Erhu Yan, Xinzhong Li, Dongmei Liu, Yanqing Su, Jingjie Guo, Hengzhi Fu. A skull-aided technique for directional solidification of Nb-41Ni-40Ti hydrogen permeable alloy. *Journal of Crystal Growth*, 2014, 391: 78-84.
- (9) Erhu Yan, Xinzhong Li, Yanqing Su, Dongmei Liu, Daming Xu, Jingjie Guo, Hengzhi Fu. Prediction of the solidification path of Al-4.37Cu-27.02Mg ternary eutectic alloy with a unified microsegregation model coupled with Thermo-Calc. *International Journal of Materials Research*, 2013, 3: 244-254.
- (10) Xinzhong Li, Dongmei Liu, Ruirun Chen, Erhu Yan, Xiao Liang, Markus Rettenmayr, Yanqing Su, Jingjie Guo, Hengzhi Fu. Changes in microstructure, ductility and hydrogen permeability of Nb-(Ti, Hf)Ni alloy membranes by the substitution of Ti by Hf. *Journal of Membrane Science*, 2015, 484: 47-56.
- (11) Yongjin Zou, Qingyong Wang, Cuili Xiang, Chengying Tang, Hailiang Chu, Shujun Qiu, Erhu Yan, Fen Xu, Lixian Sun. Doping composite of polyaniline and reduced graphene oxide with palladium nanoparticles for room-temperature hydrogen-gas sensin, *International Journal of Hydrogen Energy*, 2016, 41: 5396~5404.
- (12) Shujun Qiu, Jianling Huang, Feihong Shen, Rui Pan, Hailiang Chu, Yongjin Zou, Cuili Xiang, Erhu Yan, Fen Xu, Lixian Sun. Enhancement of the electrochemical performance of CoB amorphous alloy through the addition of A2B7-type alloy, *International Journal of Hydrogen Energy*, 2016, 41: 16142~16147.
- (13) Lifang Song, Yongjin Zou, Haitao Zhang, Cuili Xiang, Hailiang Chu, Shujun Qiu, Erhu Yan, Fen Xu, Lixian Sun. High Performance Supercapacitor based on Polypyrrole/Melamine Formaldehyde Resin Derived Carbon Material, *International Journal of Electrochemical Science*, 2017, 12: 1014~1024.
- (14) Shujun Qiu, Jianling Huang, Hailiang Chu, Yongjin Zou, Cuili Xiang, Erhu Yan, Fen Xu, Lixian Sun. The Co-B Amorphous Alloy: A High Capacity Anode Material for an Alkaline Rechargeable Battery, *Metals*, 2016, 6(11): 269~276.
- (15) Fen Xu, Lixian Sun, Pengru Huang, Yujia Sun, Qian Zheng, Yongjin Zou, Hailing Chu, Erhu Yan, Huanzhi Zhang, Jianhuan Wang, Yong Du. A pyridine vapor sensor based on metal-organic framework-modified quartz crystal microbalance, *Sensors and Actuators B: Chemical*, 2018, 254: 872~877.
- (16) Yongjin Zou, Yubo Gao, Cuili Xiang, Hailiang Chu, Shujun Qiu, Erhu Yan, Fen Xu, Chengying Tang, Lixian Sun. Cobalt-Nickel-Boron Supported over Polypyrrole-Derived Activated Carbon for Hydrolysis of Ammonia Borane, *Metals*, 2016, 6: 154~166.
- (17) Qingyong Wang, Yongjin Zou, Cuili Xiang, Hailiang Chu, Shusheng Liu, Erhu Yan, Fen Xu, Lixian Sun, Chengying Tang. Prussian-Blue-Doped Super-Activated Carbon as a High Performance Supercapacitor Electrode Material, *International Journal Electrochemistry Science*, 2016, 11: 5679~5690.
- (18) Erhu Yan, Fen Xu, Lixian Sun, Daming Xu. Prediction of the solidification path of Al-6.32Cu-25.13Mg alloy by a unified microsegregation model coupled with Thermo-Calc. *Acta Metallurgica Sinica*, 2016, 52(5): 632-640.

- (19) Haoran Huang, Erhu Yan, Ruonan Min, Xinzhong Li, Fen Xu, Lixian Sun. Study on optimum design and hydrogen permeability of Nb-Ti-Co separation alloy, I. Construction of phase diagram and hydrogen permeable component region, Transactions of Nonferrous Metals Society of China , 2018 , accept.
- (20) Ruonan Min, Haoran Huang, Erhu Yan, Xinzhong Li, Fen Xu, Lixian Sun. Study on optimum design and hydrogen permeability of Nb-Ti-Co separation alloy, II. Hydrogen permeability and mechanism, Transactions of Nonferrous Metals Society of China , 2018 , accept.
- (21) Erhu Yan, Haoran Huang, Guizhong Liu, Yifeng Ban, Fen Xu, Lixian Sun. The construction of hydrogen permeation model and its application in Nb-based hydrogen percolation alloy. Materials Reviews, 2018, accept.
- (22) Erhu Yan, Xinzhong Li, Ping Tang, Yanqing Su, Jingjie Guo, Hengzhi Fu. Microstructure and hydrogen permeation characteristic of near eutectic Nb-Ti-Co hydrogen separation alloy. Acta Metallurgica Sinica, 2014, 50: 71-78.
- (23) Erhu Yan, Xinzhong Li, Daming Xu, Guangwei Zhao, Jianxin Zhou, Jingjie Guo, Hengzhi Fu. Solidification mechanism of ternary quasi-peritectic alloy of Al-11.80Cu-24.22Mg. Acta Metallurgica Sinica, 2011; 47: 1464-1469.
- (24) Erhu Yan, Lixian Sun, Fen Xu, Xinzhong Li, Jingjie Guo. Research progress of hydrogen permeation membrane of Nb-Ni-Ti ternary alloy. Materials Reviews, 2015, 29: 86-91.
- (25) Xingyu Ma, Errui Wang, Shunjun Qiu, Hailiang Chu, Yongjing Zou, Cuili Xiang, Erhu Yan, Fen Xu, Lixian Sun. Study on hydrogen storage performance and its mechanism of LiNH<sub>2</sub>-MgH<sub>2</sub>-LiH system. Materials Reviews, 2016, 30 : 206-210.
- (26) P. Zhao, Z. Liu, R.D.K. Misra, F. Du, C. Zhang, Z.G. Yang, E. Yan. Non-inclusion induced crack initiation in multiphase high-strength steel during very high cycle fatigue. Materials Science & Engineering A , 2018 712: 406-413.
- (27) Erhu Yan, Lixian Sun, Fen Xu, Xinzhong Li, Jingjie Guo. Microstructure and hydrogen permeation characteristic of Nb-ZrNi alloy, conference paper, 2015.

#### Chinese Patents

- (1) Lixian Sun, Zhibao Li, Fen Xu, Erhu Yan, Weidong Yuan, Rong Cai. A preparation method of K<sub>2</sub>TiF<sub>6</sub>doped Mg/PMMA composite material. 2015, CN104692322A.
- (2) Lixian Sun, Yulong Shao, Fen Xu, Yixin Sun, Erhu Yan. A preparation method of Al-based Al-BiCl<sub>3</sub>-LiBH<sub>4</sub> composite materials. 2015, CN104925753A.
- (3) Lixian Sun, Long Yang, Fen Xu, Yixin Sun, Erhu Yan. A method of preparing metal organic frame material UiO-66 by microwave solvothermal method and its hydrogen storage property. 2015, CN104744501A.
- (4) Xinzhong Li, Erhu Yan, Dongmei Liu, Jingjie Guo. A measuring device for hydrogen permeability of hydrogen separation membrane. 2013, CN103196812A.

## 科研项目

- (1) Research on directional solidification characteristics, phase selection and solidification mechanism of Nb-Ti-Co complex quasi-peritectic alloy (National Natural Science Foundation of China).
- (2) Preparation of melt-spun Nb-Hf-Co hydrogen permeable membrane and its hydrogen permeability in multi-atmosphere (National Natural Science Foundation of China).

## 知识产权

- (1) 孙立贤, 邵豫龙, 徐芬, 孙一新, 闫二虎, 一种Al-BiCl<sub>3</sub>-LiBH<sub>4</sub>铝基复合制氢材料及其制备方法, 广西, CN201510358454.0。
- (2) 孙立贤, 李志宝, 徐芬, 闫二虎, 亓卫东, 蔡荣, 一种K<sub>2</sub>TiF<sub>6</sub>掺杂Mg/PMMA复合材料及制备方法, 广西, CN201510111394.2。
- (3) 孙立贤, 杨龙, 徐芬, 孙一新, 闫二虎, 一种微波溶剂热法制备金属有机框架材料UiO-66的方法及UiO-6的储氢性能, 广西, CN201510063139.5。
- (4) 李新中, 闫二虎, 刘冬梅, 郭景杰, 氢分离膜渗氢性能测量装置, 黑龙江, CN201310150760.6

## 联系信息

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## 常用链接

协助指导博士研究生1名，指导硕士研究生4名，本科生7名。欢迎全国各地的学子报考我的研究生，将相关资料（如简历）发送至我邮箱 [yeh@guet.edu.cn](mailto:yeh@guet.edu.cn)！

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