2024年度四川省腐蚀与防护学会科学技术奖提名公示材料

一、提名奖种

青年科创人才奖

二、提名者

西华大学

三、申请人简介

黄丽宏（1981-），女，博士，教授，硕导。四川省学术与技术带头人后备人选，四川省线上线下混合式一流课程负责人，第五届四川省金属学会冶金先进青年科技工作者，西华大学优秀科技工作者。2012 年博士毕业于四川大学，师从二次电池专家陈云贵教授；2013 年 12 月至 2015 年 8 月在美国休斯敦大学知名热电领域专家任志锋教授课题组访学。长期从事新能源转换材料及器件的相关研究，主要包括温差发电材料及器件、锂离子电池、锌离子电池的电极材料及其腐蚀与防护等。担任国际电化学学会会员，四川省腐蚀与防护学会委员，四川省金属学会会员。近年来，主持国家自然科学基金项目 1 项，教育部春晖计划项目 2 项，省教育厅及其他项目 5 项；作为主要完成人参与美国能源部项目 1 项、国家科工委创新计划项目 1 项、四川省科技支撑项目 1 项、四川省科技创新研究团队项目 2 项。在 Materials Today Physics、Chemistry of Materials、Journal of Magnesium and Alloys 等国际知名期刊发表 SCI 论文 40 余篇，引用 400 余次；出版英文专著 1 部；授权中国发明专利 3 项；获得四川省科学技术进步奖（自然科学类）一等奖 1 项，四川省科学技术进步奖（科技进步类）三等奖 1 项；受邀参加国际国内会议，并做口头汇报 5 次。

四、申请人论文或专著发表情况

发表学术论文近 40 篇，其中 SCI 检索 30 余篇。（只列举部分第一作者或通讯作者的论文）

[1] [1] Kai Lu, Guocai Yuan, Hong Tan, Pan Wang, Jiang Ye, **Lihong Huang***, Boosting Zinc-Manganese Battery Longevity: Fortifying Zinc Anodes with Glutathione-induced Protection Layer, Journal of Power Sources, 2024, 613: 234830. **通讯作者（研究生一作）**

[2] Runyu Wang, Siyun Luo, Xiaobo Mo, Hang Liu, Tong Liu, Xiaobo Lei, Qinyong Zhang, Jianjun Zhang, **Lihong Huang***, Optimization of thermoelectric property of n-type Mg_3Sb_2 near room temperature via Mn&Se co-doping, Advanced Sustainable Systems, 2023, 7(11): 2300234. **通讯作者（研究生一作）**

[3] Tong Liu, Jiansong Liao, Hang Liu, Runyu Wang, Guocai Yuan, Jing Jiang, Yi Niu, Xiaobo Lei, **Lihong Huang***, Chao Wang, Qinyong Zhang. Electrical property enhancement and lattice thermal conductivity reduction of n-type $Mg_3Sb_{1.5}Bi_{0.5}$-based Zintl compound by In&Se co-doping. Journal of Materiomics, 2023, 9: 431-437. **通讯作者（研究生一作）**

[4] **Lihong Huang**, Jiansong Liao, Guocai Yuan, Tong Liu, Xiaobo Lei, Chao Wang*, Qinyong Zhang*, Tuning the carrier scattering mechanism to improve the thermoelectric performance of p-type $Mg_3Sb_{1.5}Bi_{0.5}$ based material by Ge-doping. Materials Today Energy, 2022, 25: 100977. **第一作者**

[5] **Lihong Huang**, Tong Liu, Xiaobo Mo, Guocai Yuan, Runyu Wang, Hang Liu, Xiaobo Lei, Qinyong Zhang*, Zhifeng Ren*. Thermoelectric performance improvement of p-type Mg_3Bi_2-based materials by Zn and Ag co-doping. Materials Today Physics, 2021, 21: 100564. **第一作者**

[6] **L. Huang**, T. Liu, A. Huang, G. Yuan, J. Wang, J. Liao, X. Lei, Q. Zhang, Z. Ren. Enhanced thermoelectric performance of nominal 19-electron half-Heusler compound NbCoSb with intrinsic Nb and Sb vacancies. Materials Today Physics, 2021, 20: 100450. **第一作者**

[7] Xiaobo Mo, Jiansong Liao, Guocai Yuan, Sha Zhu, Xiaobo Lei, **Lihong Huang***, Qinyong Zhang, Chao Wang, Zhifeng Ren. High thermoelectric performance at room temperature of n-type Mg_3Bi_2-based materials by Se doping, Journal of Magnesium and Alloys, 2022, 10(4): 1024-1032. **通讯作者（研究生一作）**

[8] **Lihong Huang**, Junchen Wang, Xiaobo Mo, Xiaobo Lei, Sude Ma, Chao Wang*, Qinyong Zhang*, Improving the Thermoelectric Properties of the Half-Heusler Compound VCoSb by Vanadium Vacancy, Materials, 2019, 12(10): 1637. **第一作者**

[9] **Lihong Huang**, Junchen Wang, Xi Chen, Ran He, Jing Shuai, Jianjun Zhang*, Qinyong Zhang, Zhifeng Ren*, The Effects of Excess Co on the Phase Composition and

Thermoelectric Properties of Half-Heusler NbCoSb, Materials, 2018, 11(5): 773. **第一作者**

[10]**Lihong Huang**, Qinyong Zhang, Yumei Wang, Ran He, Jing Shuai, Jianjun Zhang, Chao Wang, and Zhifeng Ren*, The Effect of Sn Doping on Thermoelectric Performance of n-type Half-Heusler NbCoSb, Physical Chemistry Chemical Physics, 2017, 19（37）: 25683-25690. **第一作者**

[11]**Lihong Huang**, Qinyong Zhang, Bo Yuan, Xiang Lai, Xiao Yan*, Zhifeng Ren, Recent Progress in Half-Heusler Thermoelectric Materials, Materials Research Bulletin, 2016, 76: 107-112. **第一作者**

[12]**Lihong Huang**, Yumei Wang, Jing Shuai, Hao Zhang, Siqi Yang, Qinyong Zhang*, Zhifeng Ren*, Thermal Conductivity Reduction by Isoelectronic Elements V and Ta for Partial Substitution of Nb in Half-Heusler $Nb_{(1-x)/2}V_{(1-x)/2}Ta_xCoSb$, RSC Advances, 2015, 5: 102469-102476. **第一作者**

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[16]**Huang Lihong**, Chen Yungui*，Successful hydrothermal synthesis of α- Fe_2O_3 hexagonal micro-platelets and its application in Li-ion battery, Rare Metal Materials and Engineering, 2013, 42(10): 2014-2018. **第一作者**

[17]**Lihong Huang**, Ding Zhu, Yungui Chen*, Chaoling Wu, Huaibing Sun, Hong Yang, Synthesis of monodisperse α-Fe_2O_3 deep-submicron spheres and its application in Li-ion batteries, Materials Letters, 2012, 74: 37-39. **第一作者**

[18] **Lihong Huang**, Ding Zhu, Yungui Chen*, Current Researches on Metal Hydride as Anode Material in Lithium ion Batteries, Rare Metal Materials and Engineering, 2012, 41(S2): 688-692. **第一作者**

[19] Advanced Thermoelectrics—Materials, Contacts, Devices, and Systems. CRC Press Taylor & Francis, ISBN: 9781498765725. **参编作者**

五、主要知识产权证明目录

知识产权类别	知识产权具体名称	国家（地区）	授权号	授权日期	证书编号	权利人	发明人
发明专利	一种具有本征空位缺陷的 NbCoSb 基热电材料及其制备方法	中国	ZL201810892516.X	2020.9	3964578	西华大学	**黄丽宏**，王浚臣，莫小波，张勤勇，任志锋.
发明专利	一种新型 n-type 热电材料 NbVTaCoSb 及其制备方法	中国	ZL201510788082.5	2017.10	2659409	西华大学	**黄丽宏**，张勤勇，任志锋.
发明专利	一种 n-type 热电材料 NbCoSb 的制备方法	中国	ZL201510789844.3	2017.9	2404336	西华大学	**黄丽宏**，张勤勇，任志锋.
实用新型专利	一种热电材料强度测试装置	中国	ZL202220951748.X	2022.12	17632409	西华大学	刘彤（研究生），**黄丽宏**，张勤勇，蔡芳共.