

一、 个人基本信息

姓名：刘洪丽

出生年月：1971 年 9 月

籍贯：山东省

性别：女

民族：汉

职称：教授

政治面貌：党员

最高学历：博士研究生

工作单位：中国民航大学航空工程学院

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二、 学习和工作经历

2022.07-至今 中国民航大学 航空工程学院 “蓝天学者”特聘教授

2011.07-2022.06 天津城建大学 材料学院 教授 院长

2005.04-2011.06 佳木斯大学 材料学院 教授 副院长 博士生导师

2001.09-2005.03 北京航空航天大学 材料学院 材料学专业 博士研究生

三、 研究方向

方向一：高温防/隔热材料及热防理论及技术

方向二：航空降噪材料结构设计及制造

方向三：绿色能源动力系统关键材料

方向四：特种航空材料基因工程

四、 科研情况

1. 科研项目

主持国家级省部级以上项目 20 余项，主要有：

[1] 国家自然科学基金面上项目：“DNA 折纸定位陶瓷先驱体气凝胶有序纳米拓扑结构及其应力传递与高温热阻隔机理研究”，54 万元，2023.01-2026.12，主持；

[2]中央军委基础加强计划项目课题,“***,大尺寸均质***涂层关键技术研究”,2021-10至2025-10,120万元,主持

[3]中央军委科技委重点项目:“***”,2019.10-2022.10,300万元,主持;

[4]国家自然科学基金面上项目:“纤维状粘土/二氧化硅双网络气凝胶的增强结构构建与高效隔热机理研究”,2018.01-2021.12,59万元,主持;

[5]国家自然科学基金面上项目:“先驱体法梯度折射率陶瓷微球的制备及红外阻隔机理研究”,2015.01-2018.12,82万元,主持;

[6]国家星火计划项目:“埃洛石/稻壳灰超轻绝热建筑保温板加工及产业化”,2015.01-2016.12,126万元,主持;

[7]航空科学基金:“轻质高效超高温服役双网络纳米陶瓷纤维气凝胶防隔热材料的制备及机理研究”,2023-10至2025-09,18万元,主持

[8]天津市多元基金:“螺旋陶瓷纤维气凝胶宽频吸声结构调控及其高温声能耗散机制研究”2024-10至2027-09,10万元,主持

[9]天津市自然基金重点项目:“纤维状粘土/硅基气凝胶建筑保温材料的制备及隔热机理”,2015.04-2018.03,20万元,主持;

[10]天津市科技支撑重点项目:“高强度高热阻硅基气凝胶复合板材制备技术研究”,2016.04-2019.03,30万元,(校方)主持;

[11]“高性能纳米气凝胶在保温管及管件中的应用研发”,天津市科技重大专项,300万,2018.01-2021.12.31,300万(校方)主持。

2. 学术论著

(一) 发表学术论文 100 余篇,主要有:

[1]Hongli Liu; Kun Yu; Wenjin Yuan et al. Robust, fire-resistant, and thermalstable HSMSS@SiBCN ceramic fiber membranes with blocked axial and radial heat transfer for hightemperature thermal superinsulation, *Ceramics International*, 2025.

[2] Hongli Liu; Chenghao Bian; Wenjin Yuan; Yuhao Liu; Peng Chu; Xianmin Zhu; Weiqiang Xie; Yao Song; Wenjing Zu; Kun Yu; Ziyang Peng ; Mo-doped hollow Si₃N₄/SiC ceramic fiber composites for high temperature heat insulation and oxidation resistance, *International Journal of Applied Ceramic Technology*, 2025

[3] Hongli Liu; Haijie Feng; Peng Chu; Weiqiang Xie; Xuan Wang; Zhiqiang Zhang; Shaoquan Wang; A coral-like skeleton carbon aerogel achieves good mechanical and thermal insulation properties, *Ceramics International*, 2024, 50: 42119-42126

[4] Hongli Liu; Chengzhe Liu; Ying Sui; Zhongxian Liu; Tiangang Zhang; Zhiqiang Zhang; Shuang Sun; Jianwei Jia ; Preparation of silicon-nitride ceramic fibers with hafnium compounds loaded on the surface and the high temperature properties, *Vacuum*, 2024, 220: 112732

[5]Hongli Liu; Weiqiang Xie, Qi ZhaoYttria containing silicon carbide fibers with high temperature and oxidation resistance[J]. *Materials Science and Engineering: B*, 2024, 303: 117260.

[6]Hongli Liu, Chengzhe Liu, Ying Sui, Zhongxian Liu, Tiangang Zhang, Zhiqiang Zhang, Shuang Sun, Jianwei Jia Preparation of silicon-nitride ceramic fibers with hafnium compounds loaded on the surface and the high temperature properties, *Vacuum* (2023), doi: <https://doi.org/10.1016/j.vacuum.2023.112732>.

[7]Hongli Liu,Han Pengcheng,Sui Ying,Chen Jianyu,Jia Jianwei, High thermal insulation and high strength SiBCN@SiC double network ceramic composite aerogel, *Ceramics International*, 2023, 49(23): 38351-38359.

[8]Zijian Cui,Hongyan Li,Hongli Liu, Hai Yuan,Shilei Xia,Baolian Zhang , Xiaolan Liao,Yong Zhong, Multiphase hybrid model and thermal insulation simulation of elytra-mimetic ceramic fiber aerogel, *Ceramics International*, 2023

[9]Kai Cao, Hongyan Li, Hongli Liu, Wenbo Li,Dongqing Wei, Xue Han, Juanjuan Wang,Yinghan Zheng, Anti-cracking coating with wrinkled morphology for enhancing oxidation resistance of carbon-based fiber aerogel, *Journal of the European Ceramic Society*, 2024, 44(1): 58-67

[10]Yong Zhong,Hongyan Li,Hongli Liu,Dongqing Wei,Xiaolan Liao,Baolian Zhang,Le Lu, Bio-inspired gradient multilayer ceramic fiber aerogel loaded with TaSi₂ and WSi₂: Fabrication,anti-oxidation and thermal insulation, *Journal of Alloys and Compounds*, 2023, 967: 171726.

[11]Hongli Liu,Ning Wei,Haiyuan Zhang,Jing Li,Xiang He, Fabrication of novel SiCN@ZrO₂ core-shell ceramic microspheres by using a polymeric precursor, *FERROELECTRICS*, 2017, :

[12]Hongli Liu*,Haiyuan Zhang,JingLi,Wei Kang,Peng Chu, A novel SiCN@TiO₂ core-shell ceramic microspheres derived from a polymeric precursor, *Ceramics International*, 2016, 42(06): 7135-7140.

[13]Jing Li,Jianming Rui,Yajing Li,Yiyang Qiu,Liu Hongli,Hongchun Tian, Zr-doped SiOC ceramics fibers and the high-temperature thermal performance, *International Journal of Applied Ceramic Technology*, 2023

[14] Peng Wang, Hongli Liu, WenjinYuan, Hongyan Li , Carbon nanotubes regulated hollow, skeleton carbon aerogel for effective thermal insulation and favorable mechanical behavior, *Journal of Sol-Gel Science and Technology*, 2022, 101(1): 193-204.

[15] Bo Zhang, Hongli Liu, Wei Zhao, Zhengang Guo, Hanyu Liu, Prediction of stable Cu structure and phase transition mechanism at ultra-high pressure: A comprehensive properties characterization by DFT calculation, *Physica B-Condensed Matter*, 2022, 625.

[16]Jianming Rui, Jing Li, Yajing Li, Hongli Liu, Yinhao Zhang, JieHuang, Peilin Ma, Zhong Chen, Preparation of C-SiC/ZrSixOyCz core-shell fibers by Coaxial electrospinning and the high-temperature performance, *Ceramics International*, 2022, 48 (2) : 2625-2631.

[17] HongliLiu,BoGao,Wenjin Yuan*,Hongyan Li,Jing Li,Yajing Li,Bo Zhang,Zhong Chen, Modification of graphene aerogel with titania nanotubes for efficient methylene blue adsorption kinetics, *Journal of Sol-Gel Science and Technology*, 2021, 97(02): 271-280.

[18] Hongli Liu*,Peng Wang,Bo Zhang,Hongyan Li,Jing Li,Yajing Li,Zhong Li, Enhanced thermal shrinkage behavior of phenolic-derived carbon aerogel-reinforced by HNTs with superior compressive strength performance, *Ceramics International*, 2020, 47: 6487-6495.

[19] Hongli Liu,Lantian Zhang,Jing Li*,Hongyan Li,Guoqing An,Yajing Li,Zhong Chen, Structure and mechanical properties of HNTs/SiBCN ceramic hybrid aerogels, *Ceramics International*, 2020, 47: 9083-9089.

[20] Hongli Liu*,Chengfeng Jiang,Hongyan Li,Zhong Li, Preparation of FeBTC/silica aerogels by a co-sol-gel process for organic pollutant adsorption, *Materials Research Express*, 2020, 6: 10.1088/2053-1591/ab5076.

[21] Guoqing An , Hongli Liu* , Hongyan Lia, Zhong Chen, Jing Li, Yajing Li, SiBCN ceramic aerogel/graphene composites prepared via sol-gel infiltration process and polymer-derived ceramics (PDCs) route, *Ceramics International*, 2020, 46: 7001-7008.

[22]Hongli Liu*, Shixiong Li,Hongyan Li,Xiang He,Jing Li,Yajing Li, Facile preparation of HNT/PVOH aerogels and the construction of PVOH-assisted HNT three-dimensional network, Journal Of Sol-Gel Science And Technology, 2019, 91: 496-504.

[23]Hongyan Li, Magdalena Sztukowska, Hongli Li*, Hong yuan Dong, Dorota Małaszkiwicz, Hai Zhang, Xiao Wang, Infrared barriering behavior of reduced graphene oxide aerogel/ antimony tin oxide-polyaniline hybrids, Ceramics International, 2020, 46(08): 10971-10978.

[24]Hongyan Li, Qi Li, Hongli Liu*, Kai Cao, Pengyu Zhang, Tong Liu, Dongmei Wang,Xiaolan Liao, Dongqing Wei, Fabrication of anti-icing surface with halloysite spherical microcapsule, Journal of materials research, 2020, 35(21): 2887-2896.

[25]Guoqing An , Hongli Liu* , Hongyan Lia, Zhong Chen, Jing Li, Yajing Li, SiBCN ceramic aerogel/graphene composites prepared via sol-gel infiltration process and polymer-derived ceramics (PDCs) route, Ceramics International, 2020, 46: 7001-7008.

[26]Jing Li, Hongli Liu, Yiting Zhang, Yajing Li, Dongli Qi & Zhong Chen , Facile fabrication of Fe-doped Si–C–N ceramic microspheres with flower-like morphology and the infrared extinction property, Journal of Sol-Gel Science and Technology, 2020, 94 (2) : 461-467

[27]Hongli Liu,Jiangcheng Feng,Hongyan Li,Zhong Chen, Preparation of FeBTC/silica aerogels by a co-sol-gel process for organic pollutant adsorption, Materials Research Express, 2019, 06(12): .

[28]Guoqing An,Hongli Liu*,Hongyan Li,Zhong Chen,Jing Li,Yajing Li, SiBCN ceramic aerogel/graphene composites prepared via sol-gel infiltration process and polymer-derived ceramics (PDCs) route, Ceramics International, 2019, 46: 7001-7008.

[29]Hongyan Li, Yongqiang Fu, Hongli Liu*, Cong Sun, Ruyi Li, Limeng Song, Aiwu Yang, Dongqing Wei, Thermo-oxidative and thermal degradation kinetics of silica/polymethyl methacrylate composites with electrostatic interaction phase interfaces, Journal of Polymer Engineering, 2019, 39(2): 105-116.

[30]Hongyan Li*, Cong Sun, Hongli Liu, Jiyuan Li, Dongmei Wang, Pengyu Zhang, Tong Liu, Aiwu Yang, Aerogels fabricated with origami graphene part I: Preparation and mechanical behavior, Journal of Alloys and Compounds, 2019, 783: 486-493.

[31]Hongyan Li*, Ruyi Li, Hongli Liu, Dongmei Wang, Pengyu Zhang, Tong Liu, Aiwu Yang, Thermal behavior of silica aerogel/PMMA composite reinforced by non-covalent interaction, Emerging Materials Research, 2019, 8(1): 55-61.

[32]Hongyan Li, Limeng Song, Hongli Liu*, Jiyuan Li, Aiwu Yang, Cong Sun, Ruyi Li,Yongqiang Fu, Chaorun Yu, Antimony-doped tin oxide embedding graphene-based aerogel for infrared barriering, Ceramics International, 2019, 45(6): 7894-7905.

[33]Hongyan Li, Cong Sun, Hongli Liu*, Xiqing Bai, Jiangang Wang, Dongqing Wei, Baolian Zhang, Xiaolan Liao, Haiming Li, Huan Li, Aerogel fabricated with halloysite nanoclay as ibuprofen and dexamethasone carrier for dual drugs release, Materials Research Express, 2019, 6(10): DOI:10.1088/2053-1591/ab3a74.

[34]Hongyan Li, Ruyi Li, Hongli Liu*, Jiyuan Li, Dongmei Wang, Pengyu Zhang, Tong Liu, Aiwu Yang, Heat transport across phase interface in silica aerogel/polymethyl methacrylate composites, Polymer Testing, 2019, 76: 326-332.

[35]Hongyan Li, Ruyi Li, Hongli Liu*, Xiqing Bai, Dongmei Wang, Pengyu Zhang, Baolian Zhang, Dongqing Wei, and Xiaolan Liao, Load Transfer Behavior of 3D Aerogels Fabricated with Halloysite Nanotubes, Macromolecular Materials And Engineering, 2019, 304(12): DOI:10.1002/mame.201900432.

[36]Hongli Liu*, Wei Ning,He Xiang,Guoqing An,Yujie Xuan, Facile fabrication and characterization of novel threedimensional halloysite nanotubes/graphene oxide composite aerogels for waste water treatment, Ferroelectrics, 2018, 528: 22-30.

[37]Hongli Liu*,Guoqing An,Hongyan Li,Zhong Chen,Jing Li,Yajing Li, SiBCN-ZrO₂ hybrid ceramic aerogels through the polymer-derived ceramics (PDCs) route, *Ceramics International*, 2018, 44: 22991-22996.

[38]Hongli Liu*,Hongyan Li,Chen Zhong,Jing Li,Yajing Li, HNTs/SiO₂ dual-network aerogels with improved strength and thermal insulation, *Journal Of Sol-Gel Science And Technology*, 2018, 88: 519-527.

[39]Hongli Liu*, Hongyan Li, Xiang He, Peng Chu, Preparation of monolithic diatomite/silica aerogels and effect on thermal conductivity, *Rare Metal Materials and Engineering*, 2017, 46 (3) : 403-405.

[40]Hongli Liu*,Ning Wei,Jing Li,Haiyuan Zhang,Peng Chu, Synthesis of SiCN@TiO₂ core-shell ceramic microspheres via PDCs method, *Solid State Sciences*, 2017, 76: 15-19.

[41]Hongli Liu*,Peng Chu,Hongyan Li,Haiyuan Zhang, Jiadong Li, Novel three-dimensional halloysite nanotubes/silica composite aerogels with enhanced mechanical strength and low thermal conductivity prepared at ambient pressure, *Journal of Sol-Gel Science and Technology*, 2016, 80(03): 651-659.

[42]Peng Chu,Hongli Liu*,Yajing Li,Haiyuan Zhang, Jiadong Li, Synthesis of SiC-TiO₂ hybrid aerogel via supercritical drying combined PDCs route, *Ceramics International*, 2016, 42(15): 17053-17058.

[43]Hongyan Li, Hongli Liu, Junwei Li, Sen Tao, Jing Li, Yajing Li and Po Li, Synergistic effect of carbon nanotubes in combination with magnesium hydroxide on the flame retardant poly(ethylene-co-vinyl acetate), *Science And Engineering of Composite Materials*, 2016, 23(01): 29-35.

[44] Hongyan Li, Cong Sun, Ruyi Li, Yongqiang Fu, Limeng Song, Aiwu Yang, Hongli Liu*, Preparation and characterization of silica aerogel/polymethyl methacrylate composites with electrostatic interaction phase interface, *Journal of Polymer Engineering*, 2018, 38(8): 811-818.

[45]Hongli Liu*, Wei Kang, Jing Li , Cailou Zhou, Fabrication of Polyvinylsilazane and SiC/Si₃N₄ Ceramic Microspheres, *Asian Journal of Chemistry*, 2014, 26(21): 7324-7328.

[46]Hongli Liu*, Yuhui.Liu , Jing Li, Preparation of SiC/TiO₂ ceramic microspheres, *Advances in Applied Ceramics*, 2014, 113(07): 438-443.

[47]Hongyan Li, Hongli Liu, Jing Li, Yajing Li, Po Li, Preparation and Characterization of Magnesium Hydroxide-Multiwalled Carbon Nanotubes/Poly(Ethylene-co-Vinyl Acetate) Nanocomposites, *Materials Focus*, 2014.

[48]Hongli Liu*, Shiyu Hu, Jiujun Yang, Xuelian Zhao, Baishen Qiu, Fabrication of a SiC-Ti functionally graded bonding interlayer by precursor method, *Materials Science Forum*, 2013, 745-746 : 696-699.

[49]Hongli Liu*, Jiujun Yang, Shiyu Hu, Lie Qv, Xuelian Zhao, Guozun Li, Joining of High Strength Graphite with Silicon Resin and SiO₂ Addition, *Materials Science Forum*, 2013, 745-746 : 621-625.

[50]Yiting Zhang, Jing Li, Hongli Liu, Yajing Li, Jianming Rui, Hengpeng Da & Zhong Chen , Microencapsulated phase change materials composited Al₂O₃-SiO₂ aerogel and the thermal regulation properties, *Journal of Sol-Gel Science and Technology*, 2020, 96(3): 627-635.

(二) 出版专著:

[1]《新型隔热硅基气凝胶复合材料》,化学工业出版社,2019,主编;

[2]《新型结构陶瓷的制造工艺-先驱体转化法及其应用》,机械工业出版社, 2011, 主编;

[3]《新时代城建类专业课程思政理论建设与实践案例》,化学工业出版社, 2020, 主编;

[4]《材料化学专业综合实验》 化学工业出版社,2015,主编.

3. 授权专利

[1]刘洪丽; 陈建宇; 袁文津; 刘玮; 刘文成; 楚晓雨; 刘成哲 ; 基于电纺法轻质承载纳米陶瓷气凝胶及其制备方法, 2023-4-18, ZL 2022 1 0445467.1

[2]刘洪丽; 袁文津; 刘文成; 睢颖; 刘玮; 陈建宇; 楚晓雨 ; 一种增强隔热二氧化锆复合陶瓷气凝胶及其制备方法, 2022-12-9, ZL 2022 1 0602762.3

[3]刘洪丽 何翔 李洪彦 褚鹏 李婧 李亚静 刘志华, 一种埃洛石粘土掺杂石墨烯气凝胶及其制备方法, 专利号 201610779181.1;

[4]刘洪丽 魏宁 李洪彦 李婧 李亚静, 以 SiCN 为核层的红外遮光剂及其制备方法和应用, 专利号 201610739551.9;

[5]刘洪丽 杨爱武 王建廷 褚鹏 张海媛 李家东, 一种无机发泡建筑保温板的制备方法, 专利号 201710941819.1;

[6]刘洪丽 张海媛 杨爱武 李婧 李亚静 李洪彦 褚鹏, 一种核壳陶瓷微球及其制备方法, 专利号 201510413256.X;

[7]刘洪丽 杨爱武 王建廷 褚鹏 张海媛 李家东, 一种无机发泡建筑保温板的制备方法 ZL201510338547.7;

[8]刘洪丽 李婧 李亚静 李洪彦 刘玉惠, 空心梯度红外热阻隔微球的制备方法 ZL201510413260.6;

[9]刘洪丽 刘玉惠 李婧 李洪彦 李亚静, 一种用于耐高温涂料的空心梯度轻质高红外热阻隔微球 ZL201410029860.8;

[10]刘洪丽 康伟 李婧 李洪彦 李亚静, 一种用于 SiO₂ 气凝胶的红外高屏蔽核壳结构遮光剂及其制备方法 ZL201410029966.8;

[11]刘洪丽 李亚静 李婧 李洪彦 康伟, 红外高屏蔽核壳结构遮光剂及其制备方法和应用 ZL201510412397.X;

[12]刘洪丽 李婧 康伟 李国遵 扈世有 李洪彦, 一种空心陶瓷微球及其制备方法 ZL201310315521.1;

[13]刘洪丽 李婧 赵雪莲 李军伟 李国遵 杨坤 万仟, 一种耐高温的不锈钢连接技术 ZL201310178755.6;

[14]刘洪丽 杨久俊 李婧 康伟 赵雪莲 刘玉惠 王雯, 一种生土建筑墙体表面高疏水性渗透性防水材料 ZL201310169958.9;

[15]刘洪丽 李国遵 李亚静 扈世有 韩立 杨久俊 曲列, 一种高抑烟、高氧指数酚醛防火保温板及其制备方法 ZL201310315440.1;

[16]刘洪丽 杨静 安国庆 李世雄 刘长健, 便于拆卸和安装的保温板, ZL201721848589.6;

[17]刘洪丽 杨静 宣玉杰 蒋成凤 蒋松涛, 建筑施工用保温板, 201721851192.2;

[18]刘洪丽 李晓辉 李洪彦 李婧 李亚静 何翔, 一种可锚固的建筑保温板, ZL 201721336539.X;

[19]刘洪丽 李桂茹 褚鹏 李家东,一种杀菌型中空复合板, ZL201520754716.0;

[20]刘洪丽 褚鹏 杨昆 李洪彦 李家东 王超 潘文昭,一种硅藻土保温复合建筑材料板, ZL201520746111.7;

[21]刘洪丽 褚鹏 李桂茹王建廷 张海媛 李家东,一种复合保温板, ZL 201520422059.X

[22]刘洪丽, 一种飞行器高温管道轻质隔热材料, ZL 202222740051.0

4. 科研获奖

[1] 被动式建筑保温系统关键材料研发与气密节点无热桥设计工程应用, 天津市科学技术进步二等奖, 2021, 排名第一;

[2] 水激活因子主动长效防水关键技术及其地铁工程应用, 天津市科学技术进步二等奖, 2020年, 排名第一;

[3] 高性能气凝胶建筑保温板关键制备技术及应用, 天津市科技进步二等奖, 2018年, 排名第一;

[4] 水泥窑处置有机污染土超洁净排放与建材化利用关键技术研究及应用, 中国循环经济协会科技进步三等奖, 2021, 排名第四;

[5] 原位自生陶瓷-金属复合材料的基础理论研究, 黑龙江省高校科学技术进步二等奖, 2011年, 排名第二;

[6] 采用新型陶瓷先驱体及填料连接 SiC 陶瓷及 Cf/SiC 复合材料的工艺和机理研究, 黑龙江省高校科学技术进步二等奖, 2010年, 排名第一;

[7] 采用 POS、PSZ 先驱体聚合物及填料制备高性能开孔多孔陶瓷材料的研究, 佳木斯市科学技术进步一等奖, 2011年, 排名第一

5. 学术兼职

[1] 现任中国硅酸盐学会固废分会理事;

[2] 现任中国硅酸盐学会房建分会理事;

[3] 现任天津市硅酸盐学会副理事长。

五、 其他

- [1]2017 年荣获天津市高校学科“领军人才”;
- [2] 2016 年荣获天津市“三八红旗手”;
- [3] 2010 年入选黑龙江省“新世纪”优秀人才;
- [4] 2007 年被评为市级“五四青年”称号。
- [5]2020 年天津市级教学团队负责人;
- [6]2018 年天津市高校创新团队负责人;
- [7]2020 年天津市级一流本科专业“材料科学与工程”负责人;
- [8]2020 年天津市优秀学位课程“材料结构与性能”负责人。