

● 教师介绍 Faculty



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Education:

2001.09-2006.12, Beijing University of Chemical Technology, Beijing, China, Ph.D.

1991.09-1994.06, Beijing University of Chemical Technology, Beijing, China, M.S.

1987.09-1991.06, Qufu Normal University, Shandong, China. B.S.

Research Experience:

2012.01-Now, Professor, College of Materials Science and Engineering, Beijing University of Chemical Technology, Beijing, China;

2011.01-2011.12, Visiting scholar, School of Mechanical and Materials Engineering, Washington State University, Pullman, USA

2003.10-2011.12, Associate Professor, College of Materials Science and Engineering, Beijing University of Chemical Technology, Beijing, China;

1994.08-2003.09, Assistant, lecturer, College of Materials Science and Engineering, Beijing University of Chemical Technology, Beijing, China.

Awards and Honors:

China Petroleum and Chemical Industry Federation award for technological invention, the 1st prize. Personal rank fourth (2011FMR0072-4).

Research interests:

- **Carbon nanofiber-based composite electrode materials for supercapacitors, lithium ion batteries, sodium ion batteries, hybrid capacitors:** synthesis and processing technologies (electrospinning techniques, hydrothermal and solvothermal synthesis, doping modification); characterization of structures and properties including mechanical properties and some functional properties such as electrochemical performance, electrical conductivity, etc.
- **Inorganic-organic composite solid electrolyte:** processing technologies, characterization of structure, mechanical properties, heat resistance and electrochemical performance, etc.
- **Carbon fiber reinforced resin matrix composites:** manufacturing technologies; interface issues; mechanical properties; durability; environmental aging behavior and mechanism analysis.

Representative Publications:

- (1) Peng Xu, Yunhua Yu, Mei He, Dawei Liu, Gang Li, Xiaoping Yang, Enhanced interfacial and mechanical properties of high-modulus carbon fiber composites: Establishing modulus intermediate layer between fiber and matrix based on tailored-modulus epoxy, Composites

Science and Technology, 2018, 163: 26-33

- (2) Peng Xu, **Yunhua Yu**, Zhenjiang Guo, Xianren Zhang, Gang Li*, Xiaoping Yang* , Evaluation of composite interfacial properties based on carbon fiber surface chemistry and topography: Nanometer-scale wetting analysis using molecular dynamics simulation , Composites Science and Technology, 2019, 171: 252-260.
- (3) Mengjie Li, Hao Li, Jin-Le Lan*, **Yunhua Yu***, Zhongjie Du and Xiaoping Yang, Integrative Preparation of Mesoporous Epoxy Resin-Ceramic Composite Electrolytes with Multilayer Structure for Dendrite-Free Lithium Metal Batteries, Journal of Materials Chemistry. A, 2018, 6, 19094-19106.
- (4) Cheng Yang, Mengyan Zhang, Nizao Kong, Jinle Lan*, **Yunhua Yu***, Xiaoping Yang , Self-Supported Carbon Nanofiber Films with High-Level Nitrogen and Phosphorus Doping for High-Performance Lithium-Ion and Sodium-Ion Capacitors, ACS Sustainable Chem. Eng 2019, 7, 10, 9291-9300.
- (5) Cheng Yang, Jinle Lan*, Chenfeng Ding, Feng Wang, Sajid Hussain Siyal, **Yunhua Yu***, Xiaoping Yang. Three-dimensional hierarchical ternary aerogels of ultrafine TiO₂ nanoparticles@porous carbon nanofibers-reduced graphene oxide for high-performance lithium-ion capacitors, Electrochimica Acta, 2019, 296, 790-798.
- (6) Hao Li, Mengjie Li, Sajid Hussain Siyal, Ming Zhu, Jin-Le Lan* , Gang Sui, **Yunhua Yu*** , Weihong Zhong, Xiaoping Yang. A sandwich structure polymer/polymer-ceramics/polymer gel electrolytes for the safe, stable cycling of lithium metal batteries. Journal of Membrane Science 2018, 555: 169-176.
- (7) Haocheng Yuan, Yuqiang Jin, Jinle Lan*, Yuan Liu, **Yunhua Yu***, Xiaoping Yang. In situ synthesized SnSe nanorods in a SnO₂@CNF membrane toward high-performance freestanding and binder-free lithium-ion batteries, Inorganic Chemistry Frontiers, 2018, 4, 932-938.
 - (8) Yanyan Guo, Liming Zheng, Jin-Le Lan*, **Yunhua Yu***, Xiaoping Yang. MnO nanoparticles encapsulated in carbon nanofibers with sufficient buffer space for high-performance lithium-ion batteries, Electrochimica Acta 2018, 269 : 624-631.
 - (9) Cheng Yang#, Jin-Le Lan#, WenXiao Liu, Yuan Liu, **YunHua Yu***, XiaoPing Yang*. A High-performance Li-ion capacitor based on an activated carbon cathode and a well-dispersed ultrafine TiO₂nanoparticles embedded in mesoporous carbon nanofibers anode, *ACS Appl. Mater. Interfaces*, 2017, 9, 18710-18719.
 - (10) Yang YW, Hou XY, Ding CF, Lan JL*, **Yu YH***, Yang XP, Eco-Friendly Fabricated Nonporous Carbon Nanofibers with High Volumetric Capacitance: Improving

Rate Performance by Tri-Dopants of Nitrogen, Phosphorus, and Silicon, *Inorganic Chemistry Frontiers*, 2017, 4, 2024-2032.

(11) Liming Zheng, Yuan Liu, Jinle Lan, **Yunhua Yu**, Xiaoping Yang. Hierarchical heterostructure of interconnected ultrafine MnO₂ nanosheets grown on carbon-coated MnO nanorods toward high-performance lithium-ion batteries. *Chemical Engineering Journal*, 2017, 330: 1289-1296.

(12) Yuqiang Jin, Haocheng Yuan, Jin-Le Lan*, **Yunhua Yu**, Yuan-Hua Lin, Xiaoping Yang*. Bio-inspired spider-web-like membranes with hierarchical structure for high performance lithium/sodium ion battery electrodes: the case of 3D freestanding and binder-free bismuth/CNFs anodes. *Nanoscale* 2017, 9, 13298-13304.

(13) Yuan Liu, Xiaodong Yan, Jinle Lan, **Yunhua Yu***, Xiaoping Yang, Yuanhua Lin*, Phase-separation induced hollow/porous carbon nanofibers containing in situ generated ultrafine SnO_x as anode materials for lithium-ion batteries, *Mater. Chem. Front.*, 2017, 1, 1331-1337.

(14) Lingzhi Qian, Jin-Le Lan*, Mengyao Xue, **Yunhua Yu***, Xiaoping Yang. Two-step ball-milling synthesis of a Si/SiO_x/C composite electrode for lithium ion batteries with excellent long-term cycling stability, *RSC Adv.* 2017, 7, 36697-36704.

(15) Yuan Liu, Xiaodong Yan, **Yunhua Yu***, Xiaoping Yang, Yuanhua Lin*. Eco-Friendly Fabricated Porous Carbon Nanofibers Decorated with nanosized SnO_x as High-Performance Lithium-Ion Battery Anodes, *ACS Sustainable Chem. Eng.* 2016, 4, 2951-2959.

(16) Xiaorong Fan, Xiaodong Yan, **Yunhua Yu***, Jinle Lan, Xiaoping Yang, Phosphorus groups assisted growth of vertically oriented polyaniline nanofibers on N/P co-doped carbon nanofibers for high-performance supercapacitors, *Electrochimica Acta*, 2016, 216, 355-363.

(17) Yuan Liu, Jin-Le Lan, Qing Cai, **Yunhua Yu***. Encapsulating Tin Dioxide@Porous Carbon in Carbon tubes: A Fiber-in-Tube Hierarchical Nanostructure for Superior Capacity and Long-Life Lithium Storage, *Part. Part. Syst. Charact.* 2015, 32, 952-961.

(18) Yuan Liu, Xiaodong Yan, **Yunhua Yu***, Xiaoping Yang, Self-improving anodes for lithium-ion batteries: continuous interlamellar spacing expansion induced capacity increase in polydopamine-derived nitrogen-doped carbon tubes during cycling, *J. Mater. Chem. A* 2015, 3, 20880-20885.

- (19) Cheng Chi, Jinle Lan, Jiangman Sun, Yuan Liu, **Yunhua Yu***, Xiaoping Yang. Amorphous Cu-added/SnO_x/CNFs composite webs as anode materials with superior lithium-ion storage capability, RSC Adv., 2015, 5, 41210-41217
- (20) Qian Li, Jin-Le Lan, Yuan Liu, **Yunhua Yu***, Xiaoping Yang, Carbon nanofiber-supported B₂O₃-SnO_x glasses as anode materials for high-performance lithium-ion batteries, RSC Advance. 2015, 5, 89099-89104.



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Research Field: Biodegradable polymers and biocomposites for biomedical applications; Tissue engineering

Education

September, 2000 – June, 2003:

Institute of Chemistry, Chinese Academy of Sciences, Beijing, China
PhD in Polymer Physics and Chemistry

September, 1997 – June, 2000:

Institute of Chemistry, Chinese Academy of Sciences, Beijing, China
MS in Polymer Physics and Chemistry

September, 1989 – June, 1993:

Wuhan University, Wuhan, China
BS in Polymer Physics and Chemistry

Work Experience

January, 2012 - present: Professor

College of Materials Science and Engineering, Beijing University of Chemical Technology

January, 2013 – January, 2014: Visiting Scholar