



所属学院 化工学院

学科领域 化学工程与技术

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个人简介

1983/09—1988/07 华东化工学院（现华东理工大学）化学工程研究所，获工学博士
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 1998/11—至今 华东理工大学化工学院化学工程研究所，教授、博导和所长
 1996/11—1998/11 新加坡国立大学化学与环境工程系工作研究员 (Research Fellow)
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研究方向

1、功能膜材料与结构调控：研究复合膜构建与形成机理、凝聚态膜结构调控、纳米通道膜的传递行为、膜表面或界面改性、合金膜、膜表征等；分子印迹聚合物、含氟高分子材料、聚酰亚胺、分子筛、MOF等膜材料合成与改性；
 2、膜强化分离 – 反应过程及其应用：膜强化反应与分离过程，以及 MBR、RO、NF、UF、PV、GS 等集成膜应用；难降解有机物废水与重金属废水的耦合膜分离，以及废弃膜回收和利用。
 3、超净高纯材料与工程：超净高纯膜材料制备与表征、ppb 级以下的电子化学品制备关键技术等。

研究成果及主要发表文章

[1]. Shuang-Mei Xue, Zhen-Liang Xu, Yong-Jian Tang, Chen-Hao Ji. Polypiperazine-amide nanofiltration membrane modified by different functionalized multi-walled carbon nanotubes (MWCNTs). *ACS Appl. Mater. Interfaces*, 2016, 8 (29):19135–19144.

[2]. Zhe-Qin Dong, Bao-Juan Wang, Min Liu, Xiao-hua Ma, Zhen-Liang Xu. A self-cleaning TiO₂ coated mesh with robust underwater superoleophobicity for oil/water separation in complex environment. *RSC Advances*, 6(51):65171-65178

[3]. Ming Wang, Ming-Ling Huang, Yue Cao, Xiao-Hua Ma, Zhen-Liang Xu. Fabrication, characterization and separation properties of three-channel stainless steel hollow fiber membrane. *J. Membr. Sci.*, 2016, 515:144-153

[4]. Bing-Wu, Zhou, Hai-Zhen Zhang, Zhen-Liang Xu, Yong-Jian Tang. Interfacial polymerization on PES hollow fiber membranes using mixed diamines for nanofiltration removal of salts containing oxyanions and ferric ion. *Desalination*. 2016, 394:176-178

[5]. Chen-Hao Ji, Shuang-Mei Xue, Zhen-Liang Xu, Xiao-Hua Ma. Fabrication and Characterization of Novel Hollow Fiber Catalytic Packing of PFSA-PES-ZrO₂ (shell)-TiO₂ (core) Solid Superacid via Wet-Spinning Method. *Chem. Eng. Sci.*, 2016, 152:1-11

[6]. Yong-Jian Tang, Zhen-Liang Xu, Ben-Qing Huang, Yong-Ming Wei, Hu Yang. Novel polyamide thin-film composite nanofiltration membrane modified by poly(amidoamine) and SiO₂ gel. *RSC Advances*, 2016, 6(51):45585-45594

[7]. Ming Wang, Qi-feng Zhong, Yue Cao, Zhen-Liang, Xu Xiao-hua Ma. Modification of porous stainless steel hollow fibers by adding TiO₂, ZrO₂ and SiO₂ nano-particles. *J. Porous Materials*. 2016, 23(3):773-782

[8]. Min Liu, Sheng-Hui Liu, Zhen-Liang Xu, Yong-Ming Wei, Hu Yang. Microporous polymeric membranes via thermally induced phase separation: A review [J]. *Front. Chem. Eng.* 2016, 10 (1):57-75

[9]. Zhen Wang, Yong-ming Wei, Zhen-liang Xu, Yue Cao, Zhe-qin Dong, Xian-lin Shi. Preparation, characterization and solvent resistance of -Al₂O₃/ -Al₂O₃ hollow fiber NF composite membrane. *J. Membr. Sci.*, 2016, 503:69-80

[10]. Yong-Jian Tang, Lan-Jie Wang, Zhen-Liang Xu, Yong-Min Wei, Hu Yang. Novel high-flux thin film composite nanofiltration membranes fabricated by the NaClO pre-oxidation of the mixed diamine monomers of PIP and BHHTM in the aqueous phase solution. *J. Membr. Sci.*, 2016, 502:106–115

[11]. Yong-Jian Tang, Zhen-Liang Xu, Shuang-Mei Xue, Yong-Min Wei, Hu Yang. A chlorine-tolerant nanofiltration membrane prepared by the mixed diamine monomers of PIP and BHHTM. *J. Membr. Sci.*, 2016, 498:374–384

[12]. Zhe-Qin Dong, Bao-Juan Wang, Xiao-hua Ma, Yong-Ming Wei, Zhen-Liang Xu. FAS Grafted Electrospun Polyvinylalcohol Nanofiber Membranes with Robust Superhydrophobicity for Membrane Distillation. *ACS Appl. Mater. Interfaces*, 2015, 7(40):22652-22659

[13]. Zhe-Qin Dong, Zhen-Liang Xu, Xiao-hua Ma, Wen-Ting You, Fang-bing Li. Superhydrophobic modification of PVDF-SiO₂ electrospun nanofibrous membranes for vacuum membrane distillation. *RSC Advances*, 2015, 5:67962-67970

[14]. Long-Bao Zhao, Min Liu, Zhen-Liang Xu, Yong-Ming Wei, Min-Xian Xu. PSF hollow fiber membrane fabricated from PSF-HBPE-PEG400-DMAc dope solutions via reverse thermally induced phase separation (RTIP) process. *Chem. Eng. Sci.*, 2015, 137:131

[15]. Xiao-Hua Ma, Zhe-Qin Dong, Ping-Yun Zhang, Qi-Feng Zhong, Zhen-Liang Xu. Preparation and characterization of superhydrophilic and ultrafine PVDF electrospun nanofibrous membrane based on in situ free radical polymerization. *Materials Letters*, 2015, 156:58–61

[16]. Gui-E Chen, Yan-Jun Liu, Zhen-Liang Xu, Yong-Jian Tang, Hui-Hong Huang, Li Sun. Fabrication and characterization of a novel nanofiltration membrane by the interfacial polymerization of 1,4-Diaminocyclohexane (DCH) and trimesoyl chloride (TMC). *RSC Advances*, 2015, 5 (51):40742-40752

[17]. Ping-Yun Zhang, Zhen-Liang Xu, Xiao-Hua Ma, Hu Yang, Yong-Ming Wei, Wen-Zhi Wu. Fabrication and characterization of PVDF hollow fiber membranes employing in-situ self-assembly modulation concept. *J. Membr. Sci.*, 2015, 486:119-131.

[18]. Long-Bao Zhao, Min Liu, Zhen-Liang Xu, Yong-Ming Wei, Min-Xian Xu, Bang-He Jiang. Modification of polysulfone hollow fiber ultrafiltration membranes using hyperbranched polyesters with different molecular weights [J]. *Polym. Adv. Technol.* 2015, 26:353–361

[19]. Ping-Yun Zhang, Zhen-Liang Xu, Xiao-Hua Ma, Hu Yang, Yong-Ming Wei, Wen-Zhi Wu. Preparation and characterization PVDF membranes from water and ethanol coagulants via in situ free radical polymerization [J]. *Polym. Adv. Technol.* 2014, 25(9):1044-1053.

[20]. Haitao Xu, Zhen-liang Xu, Osamu Sato. Water-Switching of Spin Crossover in a Gold Cluster Supramolecular System: From Metal-Organic Frameworks to Catenane. *Microporous & Mesoporous Materials*. 2014, 197:72-76

[21]. Zhe-Qin Dong, Zhen-Liang Xu, Wen-Ting You, Fang-bing Li. Superhydrophobic PVDF-PTFE electrospun nanofibrous membranes for desalination by vacuum membrane distillation. *Desalination*, 2014, 347:175-183

[22]. Xiao-Hua Ma, Hui-Xin Zhang, Si-Wen Gu, Yue Cao, Xin Wen, Zhen-Liang Xu. Process Optimization and Modeling of Membrane Reactor Using Self-Sufficient Catalysis and Separation of Difunctional Ceramic Composite Membrane to Produce Methyl Laurate. *Sep. Purif. Tech.*, 2014, 132:370-377.

[23]. Yi-Ting Ye, Xiao-Hua Ma, Zhen-Liang Xu, Ying Zhang. Theophylline molecular imprinted composite membranes prepared on ceramic hollow fiber substrate. *ACS Ind. Eng. Chem. Res*, 2014, 53:346-354

[24]. Long-Bao Zhao, Zhen-Liang Xu, Min Liu, Yong-Ming Wei Preparation and characterization of PSf hollow fiber membrane from PSf-HBPE-PEG400-NMP dope solution. *J. Membr. Sci.*, 2014, 454:184-194

[25]. Qingxiang Meng, Jing Ye, Zhen-liang Xu, Haitao Xu. Selectively catalytic pastry-shape micro-crystals: a new linear metal-organic framework with [Cu(NO₃)₂(bpd)(DMF)]. *Materials Letters*. 2014, 166:378-381

[26]. Deng Hu, Zhen-Liang Xu, Yong-Ming Wei, Yi-Fei Liu. Poly(styrene sulfonic acid) sodium modified nanofiltration membranes with improved permeability for the softening of highly concentrated seawater. *Desalination*, 2014, 336 :179–186

[27]. Pei-Pei Lu, Zhen-Liang Xu, Xiao-Hua Ma, Yue Cao. Preparation and characterization of perfluorosulfonic acid nanofiber membranes for pervaporation-assisted esterification [J]. *ACS Ind. Eng. Chem. Res*, 2013, 52 (24): 8149–8156

[28]. De Sun; Bing-Bing Li, Zhen-Liang Xu. Pervaporation of Ethanol/Water Mixture by Organophilic Nano-silica Filled PDMS Composite Membranes [J]. *Desalination*, 2013, 322:159–166

[29]. Xiao-Hua Ma, Si-Wen Gu, Xin Wen, Zhen-Liang Xu, Jin-Long Zhang. Spinnability of SPPEK and its application in esterification[J]. *J. Polym. Res.* 2013, 20(1):66-79

[30]. Xiao-Hua Ma, Xin Wen, Zhen-Liang Xu, Yong-Ming Wei Preparation and characterization of PVDF membranes via in-situ free radical polymerization method [J]. *Chem. Eng. Sci.*, 2013, 97:296-308

[31]. Ping-Yun Zhang, Zhen-Liang Xu, Hu Yang, Yong-Ming Wei, Wen-Zhi Wu. Fabrication and characterization of PVDF-P(PEGMA-r-MMA) ultrafiltration membranes via simplified blend method [J]. *Desalination*, 2013, 319:47-59

[32]. Ping-Yun Zhang, Zhen-Liang Xu, Hu Yang, Yong-Ming Wei, Yi-Jie Zhang. Preparation and characterization of PVDF-P(PEGMA-r-MMA) ultrafiltration membranes via simplified blend method [J]. *Desalination*, 2013, 319:47-59

[33]. Deng Hu, Zhen-Liang Xu, Yong-Ming Wei. A high performance silica-fluoropolyamide nanofiltration membrane prepared by interfacial polymerization of 2,2'-bis(4,4'-methylenedianiline and trimesoyl chloride. *Sep. Purif. Tech.*, 2013, 110:31-38

[34]. Min Liu, Yong-Ming Wei, Zhen-Liang Xu, Run-Qing Guo, Long-Bao Zhao. Preparation and characterization of polyethersulfone microporous membrane via thermally induced phase separation with low critical solution temperature system [J]. *J. Membr. Sci.*, 2013, 437:169-178

[35]. Ping-Yun Zhang, Hu Yang, Zhen-Liang Xu, Yong-Ming Wei, Jun-Lian Guo, Dong-Gen Chen. Preparation and characterization of poly(vinylidene fluoride) (PVDF) microporous membranes with interconnected bi-continuous structures via NIPS process[J]. *J. Polym. Res.* 2013, 20(2):66-79

[36]. Deng Hu, Zhen-Liang Xu, Yong-Ming Wei, Song Cao, Wei-Dong Chen, Xu-Hong Qian, A novel composite nanofiltration membrane prepared by interfacial polymerization of 2,2'-bis(1-hydroxyl-1-trifluoromethyl-2,2-trifluoroethyl)-4,4'-methylenedianiline and trimesoyl chloride. *Sep. Sci. Tech.*, 2013, 48:1-10

[37]. Xiao-Hua Ma, Xin Wen, Si-Wen Gu, Zhen-Liang Xu. Preparation and characterization of catalytic TiO₂-SPPEK-PES nanocomposite membranes and kinetics analysis in esterification[J]. *J. Membr. Sci.*, 2013, 430:62-69

[38]. Pei-Pei Lu, Zhen-Liang Xu, Hu Yang, Yong-Ming Wei. Preparation and characterization of high-performance perfluorosulfonic acid/SiO₂ nanofibers with catalytic property fabricated via electrospinning [J]. *ACS Ind. Eng. Chem. Res*, 2012, 51(35):11348-11354

[39]. Deng Hu, Zhen-Liang Xu, Chang Chen. Polypiperazine-amide nanofiltration membrane containing silica nanoparticles prepared by interfacial polymerization [J]. *Desalination*, 2012; 301:75-81

[40]. Xu Hai-tao, Xu Zhen-liang. A microporous coordination polymer of 2,6-naphthalenedicarboxylate and cobalt(II) showing reversible structural and functional transformation [J]. *Microporous and Mesoporous Materials*. 2012; 157:33-36

[41]. Pei-Pei Lu, Zhen-Liang Xu, Hu Yang, Yong-Ming Wei, Hai-Tao Xu. Effects of ethanol and isopropanol on the structures and properties of polyethersulfone/perfluorosulfonic acid nanofibers fabricated via electrospinning [J]. *J. Polym. Res.*, 2012, 19(4):9854-

[42]. Pei-Pei Lu, Zhen-Liang Xu, Hu Yang, Yong-Ming Wei. Processing-structure-property correlations of polyethersulfone-perfluorosulfonic acid nanofibers fabricated via electrospinning from polymer-nanoparticle suspensions [J]. *ACS Appl. Mater. Interfaces*, 2012, 4(3):1716-1724

[43]. Ping-Yun Zhang, Hu Yang, Zhen-Liang Xu. Preparation of polyvinylidene fluoride (PVDF) membranes via nonsolvent induced phase separation process using a tween 80 and H₂O mixture as an additive [J]. *ACS Ind. Eng. Chem. Res*, 2012, 51:4388-4396

[44]. Ping-Yun Zhang, Yan-Li Wang, Zhen-Liang Xu, Hu Yang. Preparation of poly (vinyl butyral) hollow fiber ultrafiltration membrane via wet-spinning method using PVP as additive [J]. *Desalination*, 2011; 278(1-3):186-193

[45]. Xue-fei Chang, Hu Yang, Zhen-Liang Xu, Poly(vinyl alcohol)-perfluorinated sulfonic acid nanofiber mats prepared via electrospinning as catalyst [J]. *Materials Letters*, 2011; 65(11):1719-1722

[46]. Hai-Kuan Yuan, Jie Ren, Xiao-Hua Ma, Zhen-Liang Xu. Dehydration of ethyl acetate aqueous solution by pervaporation using PVA/PAN hollow fiber composite membrane [J]. *Desalination*, 2011; 280(1-3):252-258

[47]. Ling-Feng Han, Zhen-Liang Xu, Yue Cao, Yong-Ming Wei, Hai-Tao Xu. Preparation, characterization and permeation property of Al₂O₃, Al₂O₃-SiO₂ and Al₂O₃-Kaolin hollow fiber membranes [J]. *J. Membr. Sci.*, 2011, 372(1-2):315-322

[48]. Qian Li, Zhen-Liang Xu, Min Liu. Preparation and characterization of PVDF microporous membrane with highly hydrophobic surface [J]. *Polym. Adv. Technol.* 2011, 22:520-531