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清华大学化工系教授, 博士生导师, 国家杰出青年科学基金获得者, 教育部长江学者特聘教授, 化学工程联合国家重点实验室主任。1988年和1993年先后在清华大学获学士和博士学位。1993年留校从事教学和科研工作, 1995年在法国进行博士后研究工作, 2001年赴美国MIT化工系进行高访研究。从事微化工系统、分离科学与技术以及功能和纳米材料的研究工作, 现任国际溶剂萃取会议国际委员会委员, 中国化工学会和中国颗粒学会常务理事, 担任《化工学报》、《化学工程》副主编, Chem Eng J、Particuology、Ind Eng Chem Res、《中国科学: 化学》等刊物编委或顾问编委。

先后负责和参与国家自然科学基金项目、973项目、863重点项目、教育部博士点基金、北京市科技项目以及中国石化集团和中国石油集团等企业横向合作项目。发表SCI 论文近300篇, 参加完成论著2部、译著1部和萃取手册1部, 获授权发明专利70余件。获国家技术发明二等奖、国家科技进步二等奖、中国优秀专利奖、教育部自然科学一等奖和二等奖及中国石化协会科技进步一等奖和技术发明一等奖等国家和省部级科技奖励。荣获全国优秀科技工作者、全国化工优秀科技工作者、全国优秀博士论文指导教师、北京市优秀教师、侯德榜化工科学技术奖—创新奖等荣誉称号。

研究方向

1) 微化工系统

以实现化工过程高效、绿色和安全为目标, 发展微结构化工装备和配套工艺。以液液、气液等多相复杂体系为重点对象, 采用在线显微、红外探针及化学反应探针等方法, 进行均相及非均相体系微尺度流动、混合、传递及反应性能的基础研究和CFD模拟研究。

2) 分离科学与技术

以萃取、吸收、吸附、离子交换等分离为主要研究对象, 开展其在化学、化工、材料、食品、环境、制药等领域的应用基础研究, 以多过程复合、设备微型化、反应和分离耦合以及外场强化等手段, 发展新型分离技术、新型分离功能材料和高效分离设备。

3) 功能材料可控制备

以分离材料、膜材料、功能材料、超细材料和催化材料等为主要研究对象, 以液液、气液微尺度混合为主要手段, 发展新型功能材料制备新方法, 研究材料制备过程的控制因素, 建立相应的机理模型, 实现新型功能材料的可控制备, 发展高效、连续及低能耗的功能材料工程制备技术和装备。

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