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教育背景

1996.9-2000.1，清华大学精仪系，博士

1994.9-1996.7，清华大学精仪系，硕士

1990.9-1994.7，安徽工业大学机械工程系，学士

工作履历

2012.12—现在， 清华大学机械工程系，长聘教授/研究员

2003.12—2012.12，清华大学精密仪器与机械学系，副研究员

1999.08—2003.12，清华大学精密仪器与机械学系，讲师

2003/03-2003/06, 瑞士CSM Instruments，工作访问

2008/01-2008/08, 美国Northwestern University，访问学者

2011/06-2011/09, 美国Northwestern University，访问学者

学术兼职

Friction，编委

ISRN Tribology，编委

机械工程与技术，编委

中国机械工程学会摩擦学分会油液监测技术专业委员会，委员

International Society of Bionic Engineering会员

研究领域

界面效应及控制：表面减阻、超疏水等润湿行为、胶体自组装、空蚀、防污等

研究概况

以流固界面力学为学术基础，致力于流固界面摩擦学效应与控制的研究，发展了基于流固界面效应的界面力控制的相关理论，提出了功能胶体自组装涂层制备、界面效应减阻、空蚀抑制、防污等新技术。迄今发表期刊论文170余篇，SCI收录90余篇，他引1200余次。作为项目负责人承担项目20余项。授权发明专利15项。

其中（1）界面减阻技术：通过表面形貌诱发并实现对微漩涡与微空泡动力学行为控制的减阻新方法，形成了气动“微漩涡”和水下“微空泡”的减阻新技术，实现了摩擦阻力大幅降低，发展了界面效应控制的新理论。减阻技术帮助国家自行车队获得2016年巴西奥运会冠军零的突破，帮助香港自行车队获得2012年伦敦奥运奖牌的零突破，获教育部技术发明一等奖。（2）基于界面效应的空蚀抑制技术：探明了水中近壁面微空泡坍缩形成微射流及其对表面的损伤机理，提出了通过构建流固界面力场驱离壁面附近微空泡，实现空蚀主动抑制的新技术，并成功开发了具有高抗腐蚀和低空蚀噪声等特性的新型合金材料。基于界面效应的微空泡行为控制研究获教育部自然科学一等奖。（3）纳米微颗粒自组装技术：获得了超疏水等功能涂层、除尘和脱销或VOCs控制等复合涂层、及油水分离等系列技术。开发的防尘滤袋纤维表面自组装涂层技术已实现产业转化，正为解决当前的空气污染如PM2.5等问题做出积极贡献。油水分离等技术2016年度获得了全国清华校友创意创新创业大赛种子组冠军、中国创新创业大赛（天津）新材料行业第二名、“大无缝？东丽杯”天津青年创新创业大赛第二名等奖项。

奖励与荣誉

（1）入选2016年度教育部教育部长江学者特聘教授

（2）入选2016年度天津市中青年科技创新领军人才

（3）“基于液固界面效应的微空泡行为控制”获教育部自然科学一等奖（2016年，排名第1）

（4）获得清华大学 2011-2012 年度清华大学“先进工作者”

（5）入选2010年教育部“新世纪优秀人才支持计划”

（6）“界面效应减阻技术”获教育部技术发明一等奖（2010年，排名第2）

（7）中国机械工程学会摩擦学分会最佳论文（2009年）

（8）国际学术论文奖（The 2008 PE Publishing Award）

（9）国家自然科学基金优秀结题项目（2010年）

指导的1名硕士论文获清华大学优秀硕士论文奖（2010年）

学术成果

近年发表的主要期刊论文：

- Wetting:superhydrophobic behavior

1. Li Yang, Wang Jia-Dao, Fan Li-Ning, et al, Feasible Fabrication of a Durable Superhydrophobic Coating on Polyester Fabrics for Oil-Water Separation，Acta Physico-Chimica Sinica, 32(4), 2016, 990-996

2. Jiadao Wang, Shuai Chen, Darong Chen, Spontaneous transition of a water droplet from the Wenzel state to the Cassie state: a molecular dynamics simulation study, Physical Chemistry Chemical Physics, 17(45), 2015, 30533-9

3. Shuai Chen, Jiadao Wang, and Darong Chen, States of a Water Droplet on Nanostructured Surfaces, J. Phys. Chem. C 118 (32), 2014, 18529-18536

4. Shuai Chen, Jiadao Wang, Tianbao Ma, and Darong Chen, Molecular dynamics simulations of wetting behavior of water droplets on polytetrafluorethylene surfaces, The Journal of Chemical Physics 140, 2014, 114704

5. Wang Jiadao, Li Aang, Chen Haosheng, Chen Darong. Synthesis of biomimetic superhydrophobic surface through electrochemical deposition on porous alumina. Journal of Bionic Engineering 8(2), 2011, 122 - 128

6. Sui Tao, Wang Jiadao, Chen Darong, Spreading of a fluid phase on a spherical surface, Journal of Colloid and Interface Science 358, 2011, 284-289

7. Jiadao Wang, Fengbin Liu, Haosheng Chen, Darong Chen, Superhydrophobic behavior achieved from hydrophilic surfaces, Applied Physics Letters, 95 2009 084104-1~084104-3

8. Jiadao Wang, Haosheng Chen, Tao Sui, Ang Li, Darong Chen, Investigation on hydrophobicity of lotus leaf: Experiment and theory, Plant Sci. 176 2009 687-695

9. Jiadao Wang, Darong Chen,Criteria for Entrapped Gas under a Drop on an Ultrahydrophobic Surface, Langmuir, 24 2008 10174-10180

- Self-assembly of colloidal particles

1. Jiadao Wang, Shuai Chen, Kai Cui, Dangguo Li, and Darong Chen, Approach and Coalescence of Gold Nanoparticles Driven by Surface Thermodynamic Fluctuations and Atomic Interaction Forces, ACS Nano 10, 2016, 2893-2902

2. C. Du, J. Wang, Z. Chen, D. Chen, Durable Superhydrophobic and Superoleophilic Filter Paper for Oil/Water

Separation Prepared by A Colloidal Deposition Method, Applied Surface Science 313, 2014, 304-310

3. Chuan Du, Jiadao Wang, and Darong Chen, Self-Assembly of Polytetrafluoroethylene Nanoparticle Films Using Repulsive Electrostatic Interactions, Langmuir 30, 2014, 976-983

- Surface drag reduction

1. Wang B, Wang JD, Zhou G et al, Drag reduction by micro vortexes in transverse microgrooves. Advances in Mechanical Engineering, 2014, http://www.hindawi.com/journals/ame/aip/734012/

2. Wang B, Wang JD, Chen DRDrag reduction on hydrophobic transverse grooved surface by gas naturally formed underwater. Acta Phys Sin 63, 2014, 074702

3. Wang B, Wang JD, Chen DR, Continual Automatic Generation of Gases on Hydrophobic Transverse Microrooved Surface. Chem Lett 43(5), 2014, 646-648

4. Bao Wang, JiadaoWang, ZhaoliangDou,DarongChen, Investigation of retention of gases in transverse hydrophobic microgrooved surfaces for drag reduction, Ocean Engineering79, 2014, 58-66

5. Zhaoliang Dou, Jiadao Wang, Darong Chen, Bionic Research on Fish Scales for Drag Reduction, Journal of Bionic Engineering 9, 2012, 457–464

6. DOU ZhaoLiang, WANG JiaDao, YU Feng, CHEN, DaRong, Fabrication of micro-structureed surface based on interfacial convection for drag reduction, Chinese Science Bulletin, 56, 2011,626-632

7. Jiadao Wang, Haosheng Chen, Zhongling Han, Darong Chen, Investigation of the Effect of Milli-Scale Dimples on Planar Contact Lubrication, Tribology Transactions 53, 2010, 564-572

- Cavitation erosion

1. Dayun Yan, Jiadao Wang, Fengbin Liu, Kenan Rajjoub, Formation of the self-assembled structures by the ultrasonic cavitation erosioncorrosion effect on carbon steel, AIP Advances, 5, 2015, 917132-1-9

2. Dayun Yan, Jiadao Wang*, Fengbin Liu, Inhibition of the ultrasonic microjet-pits on the carbon steel in the particles-water Mixtures, AIP Advances, 5, 2015, 077159-1-9

3. Dayun Yan, Jiadao Wang, The effect of acoustic streaming on the ring area around the cavitation erosion pit, Transactions of the ASME Journal of Tribology, 2014, 136(2), 021102-1-5.

4. XU WanLi, WANG JiaDao, ZHAO Wei, CHEN DaRong, Effect of microparticle properties on erosion in solid-steam mixtures, Chinese Science Bulletin, .56(9), 2011, 933–937

5. Xu Wanli, Wang Jiadao, Qin Li, Chen Haosheng, Chen Darong, Investigation of Erosion Damages Induced by Wet Steam Containing Micro-Particles, Tribol Lett 39, 2010,115–120

6. Chen HS, Wang JD, Chen DR. Cavitation damages on solid surfaces in suspensions containing spherical

and irregular microparticles. Wear. 266 2009 345-348

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- Antifouling

1. Jiadao Wang, Shan Cao, Chuan Du, Darong Chen, Underwater locomotion strategy by a benthic pennate diatom Navicula sp., Protoplasma, 250, 2013, 1203–1212

2. Shan Cao, Jiadao Wang, Dangguo Li, Darong Chen, Ecological and social modeling for migration and adhesion pattern of a benthic diatom, Ecological Modelling, 250, 2013 269– 278

3. Cao, Shan; Wang, Jiadao; Chen, Darong, Settlement and cell division of diatom Navicula can be influenced by light of various qualities and intensities, Journal of Basic Microbiology, 53(11) , 2013, 884-894

4. Shan Cao, Jiadao Wang, Yan Zhang, Darong Chen, The effectiveness of an antifouling compound coating based on a silicone elastomer and colored phosphor powder against Navicula species diatom, Journal of Coatings Technology and Research, 10 (3), 2013, 397-406

5. Shan Cao, Jiadao Wang, Darong Chen, Influence of Illumination on Settlement of Diatom Navicula sp., Microbial Ecology, 62(4), 2011, 931-940

6. CAO Shan, WANG JiaDao, CHEN HaoSheng, CHEN, DaRong, Progress of marine biofouling and antifouling technologies, Chinese Science Bulletin, 56, 2011,598-612

- Interface physics

1. Rong Yu, Hao Wu, Jia Dao Wang, and Jing Zhu, Strain Concentration at the Boundaries in 5-Fold Twins of Diamond and Silicon, ACS Appl. Mater. Interfaces, 9, 2017, 4253-4258

2. Li, D. G.; Chen, D. R.; Wang, J. D.; et al.， Effect of acid solution, fluoride ions, anodic potential and time on the microstructure and electronic properties of self-ordered TiO2 nanotube arrays, Electrochimica Acta, 207, 2016, 152-163

3. Li, D. G.; Wang, J. D.; Chen, D. R.; et al,.Influence of passive potential on the electronic property of the passive film formed on Ti in 0.1 M HCl solution during ultrasonic cavitation, Ultrasonics Sonochemistry, 29, 2016, 48-54

4. Li, D. G.; Wang, J. D.; Chen, D. R.; et al, The role of passive potential in ultrasonic cavitation erosion of titanium in 1 M HCl solution, .Ultrasonics Sonochemistry, 29, 2016, 279-287

5. D.G. Li, J.D. Wang , D.R. Chen , P. Liang, Influence of Passive Potential on the Electronic Property of the Passive Film Formed on Ti in 0.1M HCl Solution during Ultrasonic Cavitation, Ultrasonics Sonochemistry 29, 2015, 48-54

6. Li, D. G.; Wang, J. D.; Chen, D. R., Liang, P., Ultrasonic cavitation erosion of Ti in 0.35% NaCl solution with

bubbling oxygen and nitrogen, Ultrasonics Sonochemistry, 26, 2015, 99-110

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8. Li DG, Wang JD, Chen DR, Liang P, Influences of pH value, temperature, chloride ions and sulfide ions on the corrosion behaviors of 316L stainless steel in the simulated cathodic environment of proton exchange membrane fuel cell, Journal of Power Sources. 272, 2014, 448-456

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10. Li DG, Wang JD, Chen DR, Effects of Sm and Y on the electron property of the anodic film on lead in sulfuric acid solution, Journal of Power Sources, 235, 2013, 202-213

11. D.G. Li , J.D. Wang, D.R. Chen, Influence of ytterbium on the electrochemical property of PbCaSn alloy in sulfuric acid solution, Journal of Power Sources, 210, 2012, 163– 171

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13. Jiao Jiao, Jiadao Wang, Qunxia Chen, and Jingbo Hua, Characterization and Electrochemical Properties of Gold-Ion Implanted Boron-Doped Diamond, Journal of The Electrochemical Society, 158 (12), 2011, K230-K235

14. D. G. Li, J. D. Wang and D. R. Chen, Influences of Temperature, pH value and Sn content on Corrosion Behaviors of Lead in Sulfur Acid Solution, Journal of Power Sources, 196, 2011, 8789-8801.

15. Jiadao Wang, Fengbin Liu, Haosheng Chen, Darong Chen. The electron transfer behavior of the hydrogen-terminated boron-doped diamond film electrode. Mater. Chem. Phys. 115 2009 590-598

16. Fengbin Liu, Jiadao Wang, Darong Chen, Dayun Yan. Electronic properties of the hydrogen-terminated and oxygen-terminated diamond surfaces after exposure to the atmosphere. Chin. Phys. B 18 2009 2041-2047

17. Fengbin Liu, Jiadao Wang, Darong Chen. Ab initio Study of Hydrogen-boron interactions in diamond films. J. Nanosci. Nanotechnol. 9 2009 727-730

18. Zhao, W; Wang, JD; Liu, FB Chen, DR, Equilibrium geometric structure and electronic properties of Cl and H2O co-adsorption on Fe (100) surface, CHINESE SCIENCE BULLETIN 54(8) 2009 1295-1301

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