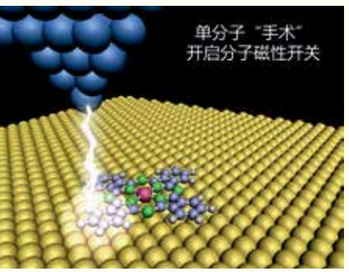
Jiang Lei,Institute of Chemistry, Chinese Academy of Sciences

Jiang Lei is widely recognized by his pioneers in the rapid growing research field of bio-inspired interfacial materials with super-wettability. Learning from nature and based on the original studies of the unique interfacial properties of natural systems, he revealed the mechanism of super-wettability phenomenon, which establishes comprehensive guidance to the design and generation of man-made materials. In recent years, Lei Jiang has applied the superwettability to the basic research of interfacial chemistry, discovers a series of new mediums for chemical reactions, and many novel methods for the preparation of nanomaterials. For instance, chemical reactions in microdrops upon superamphiphobic surfaces, crystallization and patterned crystallization, preparation and patterning of nanostructured organic and organic/inorganic composite photoelectric functional materials, chemical synthesis on three-phase interfaces, superwetting electrochemical reaction system and superwetting catalysis. With his innovative technology, both self-cleaning materials and water/oil separation system have been prepared successfully, which have great significance in the real world application. He has published more than 400 SCI journal articles and these work has been cited more than 27000 times with an H index of 77, which makes him one of the most cited materials scientists in the field.

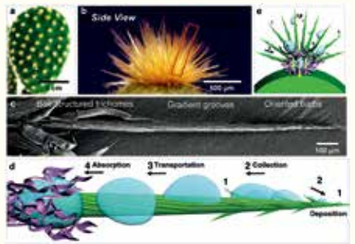
具有集水和定向输运功能的蜘蛛丝

Spider silks with water collection and directional transport



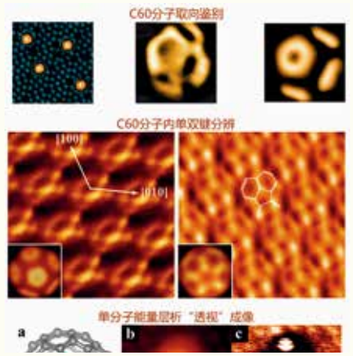
具有超浸润性质的多尺度生物界面

Multi-scale biological interfaces with superwettability



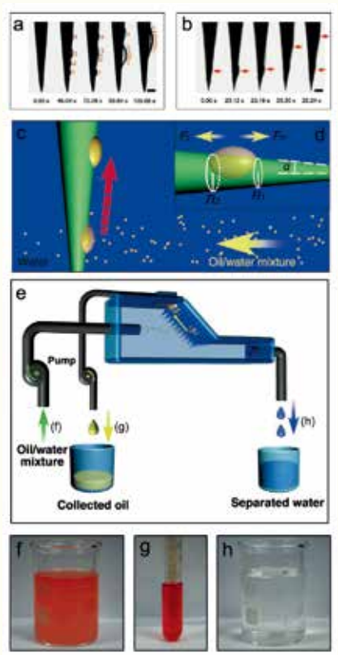
具有雾水收集能力的仙人掌多尺度结构

Multi-scale structures of the cactus with fog collection ability



超浸润界面体系

The system of superwettability.



具有在水下收集油滴能力的人造仙人掌

Artificial cactus with the ability of oil collection underwater.

江雷照片

A photo of Jiang Lei

江雷

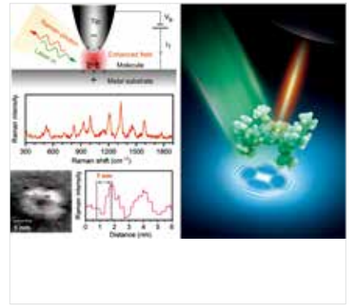
中国科学院化学研究所

主要科技贡献：

长期从事仿生超浸润界面材料的研究工作。向自然学习，基于生命体系内具有超浸润界面性质的一系列原创性研究，揭示了超浸润现象的机理，为设计和制备系列仿生智能超浸润界面材料提供了科学依据；将超浸润性质应用于界面化学的基础研究，开拓了一系列化学反应新途径和材料制备新方法，如基于超双疏表面的微量液体化学反应、有机及有机无机复合光电功能材料的纳米结构制备及图案化、三相界面的化学合成、超浸润电化学反应体系、超浸润催化等。成功实现了包括自清洁材料、油水分离材料等的制备，为实际应用奠定了基础。共发表 SCI 论文 400 余篇，被 SCI 引用 27000 余次，H 因子为 77。

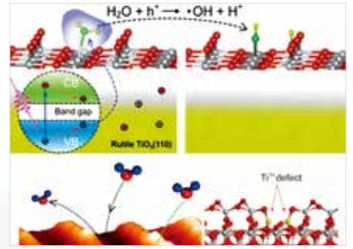
可以清理石油泄漏的合成仙人掌针—"科学新闻"对人造仙人掌工作的评价

Synthetic cactus needles could clean up oil spills - Science news highlights the work of artificial cactus.



这一发现可以促进能够在空气中捕获水滴的新材料的发展—"自然新闻"对蜘蛛丝工作的评价

"The findings may lead to the development of new materials that able to capture water from the air." - Nature News highlights the work of spider silk.



干渴的仙人掌利用刺来收集雾滴 —"科学新闻"对仙人掌工作的评价

"Thirsty cacti collect fog on spines." - Science News highlights the work of Cactus.

由于江雷研究院在超浸润界面材料领域的杰出成就，他作为中国大陆首位获奖人于 2014 年获得美国材料学会 "MRS Mid-Career Researcher Award"

Due to Jiang Lei's great contributions in the superwetting interfacial materials, he acquired the "MRS Mid-Career Researcher Award" as the first awardee in mainland China in 2014.