



## Prof. Zhong-Qun Tian

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### Nano-plasmonics: from spectroscopy to chemical reaction

May 3 | Bldg. 101  
14:40 | Seminar Room on the 1<sup>st</sup> floor

**Abstract:** The excitation of surface plasmons (SPs), collective oscillation of conduction electrons in nanostructures, can significantly redistribute photon, electron and heat energy in time and space. By using plasmonic nanostructures, even the Raman spectra of single molecules can be detected. We have made use of this ability, plasmon-enhanced Raman spectroscopy (PERS) including SERS/TERS/SHINERS with ultra-high sensitivity has been developed significantly. Recently we have extended PERS to another important branch: plasmon-mediated chemical reactions (PMCR), which exhibit differences from, and potential advantages over traditional photo-chemistry and thermal-chemistry. We have tried to use the confined EM field and/or thermal field with sharp gradients in the PMCR system to drive chemical reactions with unique characteristics.

**References:**

- [1] Panneerselvam R, et. al., (Feature Article) Chem. Commun., 2018; 54:10-25.
- [2] Li JF, et. al., Chemical Reviews, 2017, 117: 5002-5069.
- [3] J. H. Zhong, et. al., Nature Nanotechnol., 2017, 12: 132-136.
- [4] Zhang, H; et. al., Nature Communications, 2017, 8: 15447-15451
- [5] Ding SY, et. al, Nature Reviews Materials, 2016, 1: 16021-16028.

Prof. Zhong-Qun Tian received his B.S. in Chemistry from Xiamen University (1982), and his Ph.D. from University of Southampton (1987). He then returned to China and has worked at Xiamen University ever since. He was appointed Full Professor in 1992. His main research interests are surface-enhanced Raman spectroscopy, spectro-electrochemistry, nanoplasmonics and nanochemistry. He has won a number of awards including Faraday Medal of Royal Society of Chemistry (2012), Prix Jacques Tacussel of ISE (2013) and ACS Spectroscopy Award (2017). He was elected as a Member of the Chinese Academy of Sciences (2005) and Fellow of The World Academy of Sciences (2014), He currently is Director of Collaborative Innovation Center of Chemistry for Energy and Materials (iChEM), President Elect of International Society of Electrochemistry (ISE), a member of advisory board for over ten international journals, e.g., JACS, Chem. Sci., J. Phys. Chem. and PCCP, and an associate editor for Science in China: Chemistry (2008-) and Chem. Soc. Rev.(2012-).

**You are cordially invited to attend!**

Special Guest Seminar