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## MAJOR RESEARCH INTERESTS

1. Supramolecular coordination chemistry
2. Nanostructured materials synthesis and patterning
3. Chemical sensors and biosensors
4. Nanophotonics
5. Surface chemistry
6. Scanning probe microscopy
7. Catalysis

## SELECTED PUBLICATIONS

- [1] F. Wang, J. Wang, X. Liu\*, "Direct Evidence of Surface Quenching Effect on Size-Dependent Luminescence of Upconversion Nanoparticles," **Angew. Chem. Int. Ed.**, 2010, 49, 7456 (Selected as a Very Important Paper).
- [2] F. Wang, Y. Han, C. S. Lim, Y. Lu, J. Wang, J. Xu, H. Chen, C. Zhang, M. Hong and X. Liu\*, "Simultaneous Phase and Size Control of Upconversion Nanocrystals through Lanthanide Doping," **Nature**, 2010, 463, 1061 (Highlighted in *Physics World* magazine, *Analyst with Insight Media*, *Lianhe Zhaobao*, *Materials Today*, and *Xinhua News*).
- [3] X. Xue, W. Xu, F. Wang and X. Liu\*, "Multiplex Single-Nucleotide Polymorphism Typing by Nanoparticle-Coupled DNA-Templated Reactions," **J. Am. Chem. Soc.**, 2009, 131, 11668.
- [4] W. Xu, X. Xue, T. Li, H. Zeng and X. Liu\*, "Ultrasensitive and Selective Colorimetric DNA Detection by Nicking Endonuclease Assisted Nanoparticle Amplification," **Angew. Chem. Int. Ed.**, 2009, 48, 6849 (Selected as a Very Important Paper and featured as a journal inside-cover article).
- [5] F. Wang and X. Liu\*, "Recent Advances in the Chemistry of Lanthanide-Doped Upconversion Nanocrystals," **Chem. Soc. Rev.**, 2009, 38, 976 (Invited Review Article).
- [6] C. Jiang, F. Wang, N. Wu, X. Liu\*, "Up- and Down-Conversion Cubic Zirconia and Hafnia Nanobelts," **Adv. Mater.**, 2008, 20, 4826 (Selected as a Very Important Paper contribution).
- [7] F. Wang and X. Liu\*, "Upconversion Multicolor Fine-Tuning: Visible to Near-Infrared Emission from Lanthanide-Doped  $\text{NaYF}_4$  Nanoparticles," **J. Am. Chem. Soc.**, 2008, 130, 5642.
- [8] X. Xue, F. Wang and X. Liu\*, "One-Step, Room Temperature, Colorimetric Detection of Mercury ( $\text{Hg}^{2+}$ ) Using DNA/Nanoparticle Conjugates," **J. Am. Chem. Soc.**, 2008, 130, 3244 (Selected by the editor and highlighted in JACS Select #5 issue: Chemistry at the Nano-Bio Interface).
- [9] F. Wang, X. Xue and X. Liu\*, "Multicolor Tuning of (Ln, P)-Doped  $\text{YVO}_4$  Nanoparticles by Single Wavelength Excitation," **Angew. Chem. Int. Ed.**, 2008, 47, 906 (Featured as a journal inside-cover article).
- [10] J. Yuan, X. Liu, O. Akbulut, J. Hu, S. Suib, J. Kong, F. Stellacci, "Recyclable, Thermal-Stable, Selective, Superwetting Nanowire Membranes," **Nature Nanotech.**, 2008, 3, 332 (Highlighted in *The Straits Times*, *The Sunday Times* (UK), *Yahoo News*, *MIT Technology Reviews*, *Nature News*, *Discovery Channel*, and *NewScientist*).