

# Feng Xuan

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## Education

**Ph.D.** in Chemical and Biomolecular Engineering Aug. 2014  
(Nanotechnology Concentration)  
*The Hong Kong University of Science and Technology, HK*

**Successive Bachelor-Master Training Program** Jun. 2010  
**MPhil** in Biomedical Engineering & **B. S.** in Chemistry  
*Hunan University, China*

## Research Experience

**Postdoctoral Fellow** Sep. 2014 - Jan. 2015  
*Division of Biomedical Engineering,  
The Hong Kong University of Science and Technology, HK*  
Project: DNA biotechnology development  
Advisor: Prof. I-Ming Hsing

**Graduate Research Assistant** Sep. 2010 - Aug. 2014  
*Department of Chemical and Biomolecular Engineering,  
The Hong Kong University of Science and Technology, HK*  
Project: Immobilization-free electrochemical platforms for ultrasensitive and specific nucleic acid assay  
Advisor: Prof. I-Ming Hsing

**Graduate Research Assistant** Sep. 2007 - Jun. 2010  
*State Key Laboratory of Chemo/Biosensing and Chemometrics,  
Hunan University, China*  
Project: Dielectrophoretic assembly of controllable and reversible silica microwire  
Advisor: Prof. Kemin Wang, Prof. Weihong Tan, Prof. Xiaoxiao He

## Honors and Awards

- SENG PhD Research Excellence Awards, The Hong Kong University of Science and Technology (2015)
- Postgraduate Scholarship, The Hong Kong University of Science and Technology (2010 - 2014)
- First Class National Scholarship for Graduate Students, Hunan University (2007 - 2010)

## Expertise and Skills

Nucleic acid sequence analysis and design; nucleic acids synthesis, purification and enzymatic assays; PCR; gel electrophoresis; flow cytometry assay; AFM, TEM, SEM, cell culture; microscopic imaging; UV-Vis/fluorescence spectroscopy; wet-chemical synthesis of colloidal nanoparticles; surface modification and biomolecule functionalization of nanoparticles; Photolithography and chip fabrication; electrochemical measurements;

## Publications

- **F. Xuan**, I. Hsing, "Triggering hairpin-free chain-branching growth of fluorescent DNA dendrimers for nonlinear hybridization chain reaction." *Journal of the American Chemical Society*, **2014**, *136*(28), 9810-9813. (highlighted by JACS Spotlights)
- **F. Xuan**, X. Luo, I. Hsing, "Conformation-dependent exonuclease III activity mediated by metal ions reshuffling on thymine-rich DNA duplexes for an ultrasensitive electrochemical method for Hg<sup>2+</sup> detection." *Analytical Chemistry*, **2013**, *85*(9), 4586-4593.
- **F. Xuan**, X. Luo, I. Hsing, "Ultrasensitive solution-phase electrochemical molecular beacon-based DNA detection with signal amplification by exonuclease III-assisted target recycling." *Analytical Chemistry*, **2012**, *84*(12), 5216-5220. (Accelerated Article)
- **F. Xuan**, X. Luo, I. Hsing, "Sensitive Immobilization-free Electrochemical DNA Sensor Based on Isothermal Circular Strand Displacement Polymerization Reaction." *Biosensors and Bioelectronics*, **2012**, *35*, 230-234.
- X. Luo, **F. Xuan**, I. Hsing, "Real time electrochemical monitoring of PCR amplicons using electroactive hydrolysis probe." *Electrochemistry Communications*, **2011**, *13*, 742-745. (Co-first author)
- X. He, **F. Xuan**, K. Wang, Y. Yuan, X. Cheng, "Chemical-modification-enhanced dielectrophoretic assembly of controllable and reversible silica submicrowires from

nanoparticles.” *Langmuir*, **2010**, *26*, 15155-15160. (Co-first author)

- **F. Xuan**, I. Hsing, “Kinetically-Controlled Assembly of Dendritic DNA/PNA Hybrids for Ultrasensitive Homogeneous Electrochemical Nucleic Acid Assay.” *ACS Nano*. (Under revision)

## Patents and Patents Applications

- I. Hsing, **F. Xuan**, X. Luo, “Method for Detecting Mercury Ions in Solution.” U.S. Provisional patent application no. 61/852,475, filed March 18, **2013**.
- I. Hsing, X. Luo, **F. Xuan**, “Method and device for monitoring real-time polymerase chain reaction (pcr) utilizing electro-active hydrolysis probe (e-tag probe).” U.S. Provisional patent application no. 61/457,546, filed April 19, **2011**. U.S. Non-provisional patent application no. 14/112,669, filed April 18, **2012**. Pending.

## Domestic and International Conferences

11th Annual Conference on Foundations of Nanoscience: Self-Assembled Architectures and Devices (FNANO14), Snowbird, USA	<b>2014</b>
The 14th International Symposium on Electroanalytical Chemistry (ISEAC), Changchun, China – <b>Best poster awards</b>	<b>2013</b>
The HKUST International Conference on Biomedical Engineering (USTBME 2013), Hong Kong SAR	<b>2013</b>
The 16th International Conference on Miniaturized Systems for Chemistry and Life Sciences ( $\mu$ TAS 2012), Okinawa, Japan	<b>2012</b>
The 13th International Symposium on Electroanalytical Chemistry (ISEAC), Changchun, China	<b>2011</b>
The 4th International Symposium on Bioanalysis, Biomedical Engineering and Nanotechnology (ISBBN 2010), Changsha, China	<b>2010</b>

## Refereeing Service

Referee for Electroanalysis (Wiley-VCH)