DEPARTMENT OF CHEMISTRY

START >

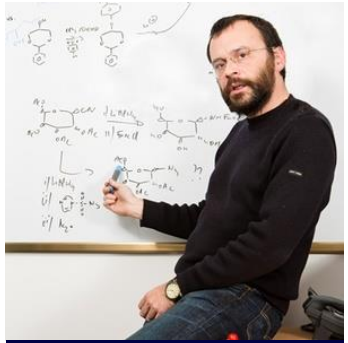
Xi'an Jiaotong-Liverpool University
西交利物浦大学

Research Theme

Sustainable Energy (energy storage, green chemistry)
Theme Lead: Lifeng, 6 staff (Lifeng, Yi Lin, Li Yang, Graham, Danlei, Meng)

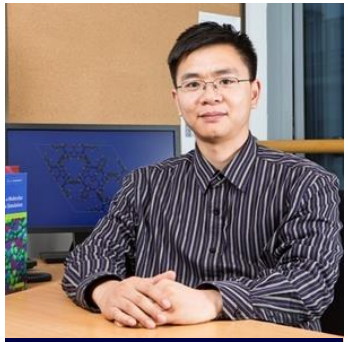
Functional Materials (nanoscale science, electrochemistry, battery materials, polymers)
Theme Lead: Graham, 7 staff (Graham, Lifeng, Li Yang, Qiuchen, Danlei, Meng, Xuan)

Medicinal and Organic Chemistry (Enzyme inhibitors, disease detection, drug delivery)
Theme Lead: Margie, 6 staff (Margie, Yi Lin, Eric, Qiuchen, Qian, Xiaodong)

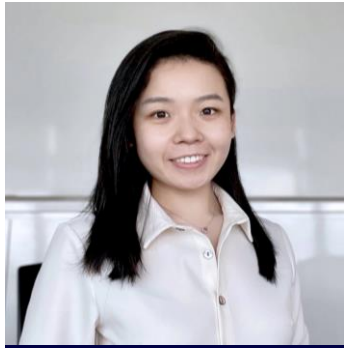


Dr Eric Amigues

Dr Graham Dawson



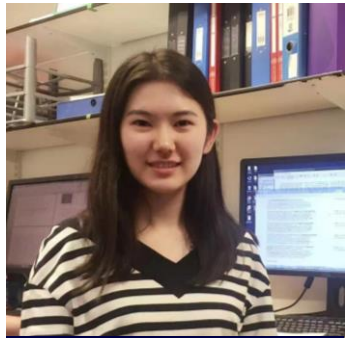
Dr Lifeng Ding



Dr Meng Ding

Dr Qiuchen Dong

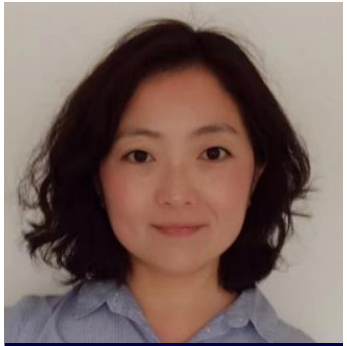
Dr Xiaodong Jin



Dr Danlei Li

Dr Yi Lin

Dr Magdalini Matziari

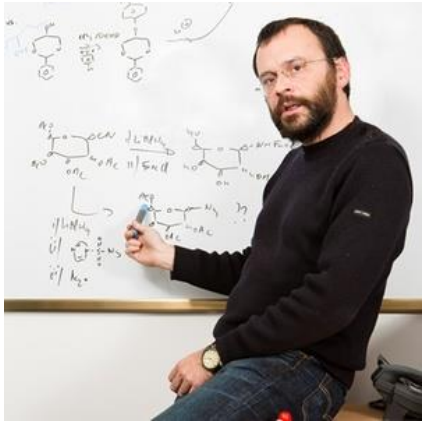


Dr Xuan Xue

Prof Li Yang

Dr Qian Zhang

BACK



Dr. Eric Amigues

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Research interests:

- **Carbohydrate chemistry**
- **Ionic liquids**
- **Bioimaging (PET)**

BACK

Dr. Graham Dawson

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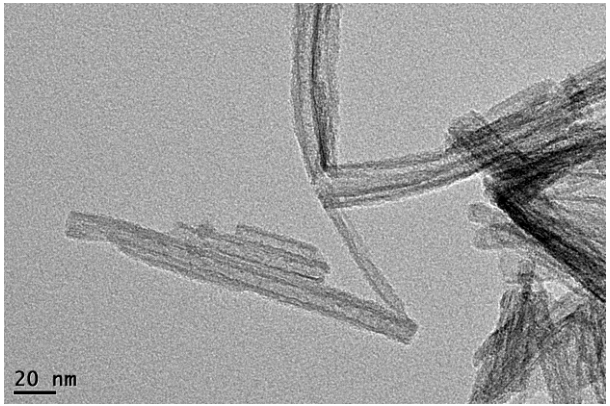
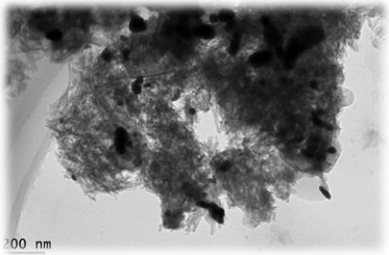
Key interests: Surface modified nanomaterials for application in photocatalysis and SERS

Water splitting



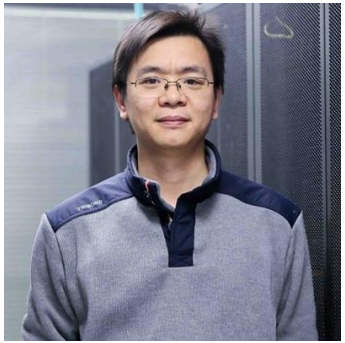


Gold Nanoparticles

Dawson et al., *ChemCatChem*, 2012, **4**, 1133

Ruochen Liu, Xuejian Fu, Congyi Wang and Graham Dawson*, Chemistry- A European Journal, 2016, **22**, 6071-6074

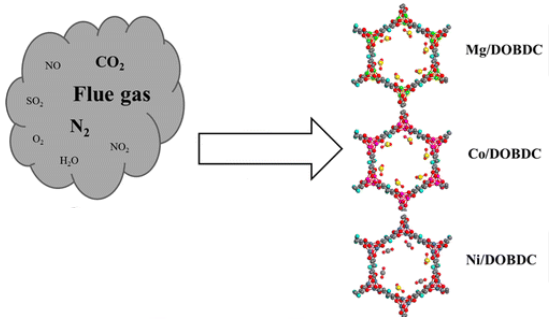
BACK



Dr. Lifeng Ding

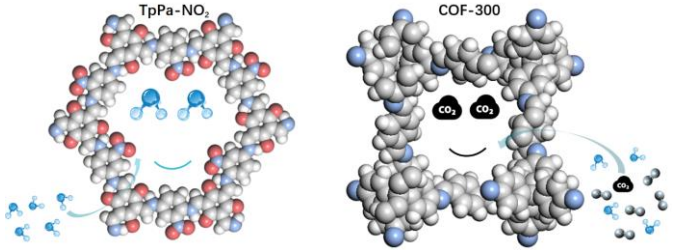
Lifeng.Ding@xjtlu.edu.cn

Key interests: Molecular simulation and design of novel nanoporous materials and polymers for practical applications.



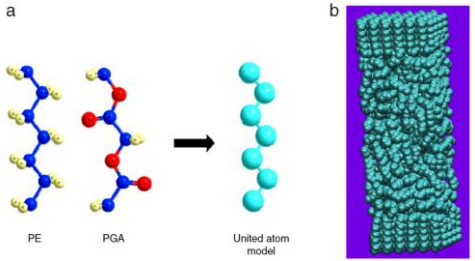
Separation and Environment:

- ❖ CO_2 capture
- ❖ Harmful gas separation
- ❖ Isotope separation
- ❖ Hydrocarbon separation
- ❖ Water harvesting



Energy Gas Storage:

- ❖ Hydrogen storage
- ❖ Methane storage



Polymers:

- ❖ Biodegradable polymer
- ❖ Hyperbranched polymer

BACK

Dr. Meng Ding

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Assembly of 2D Materials

- Metal-ion intercalated assembly
- 2D and 3D assembly methods

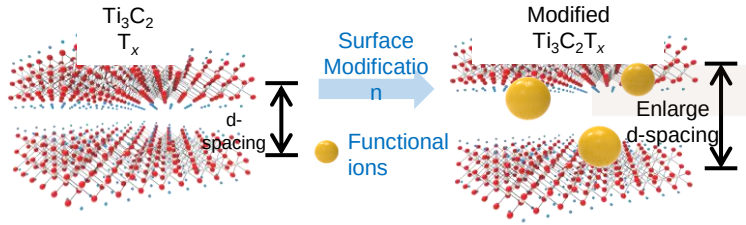
Capacitive Deionization

- Electrode materials with high adsorption capacity and high energy efficiency
- Ion selective adsorption mechanism

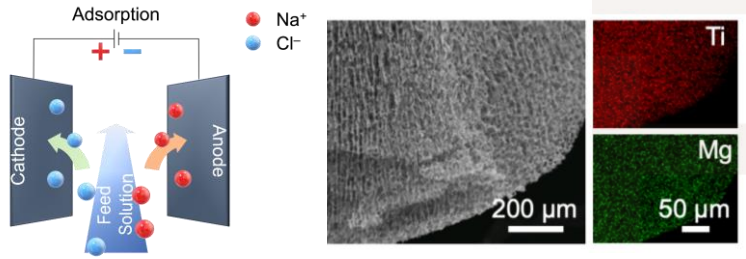
Advanced Materials for Soft Machines

- 2D materials for smart soft actuators and robots
- Wearable strain sensors

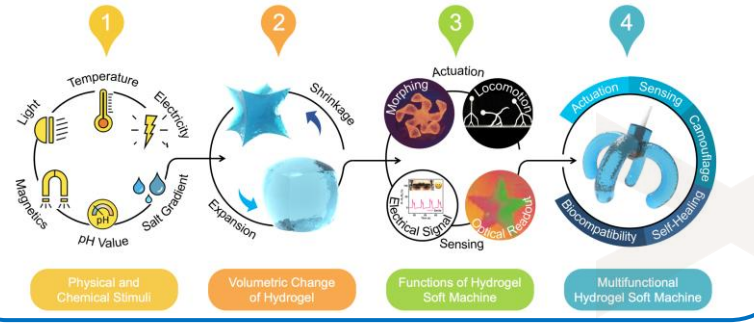
Material Design and Engineering



Environmental Applications



Electronic Applications



Dr Qiuchen Dong

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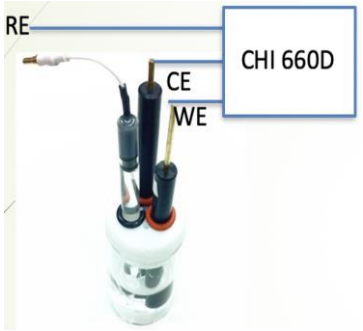
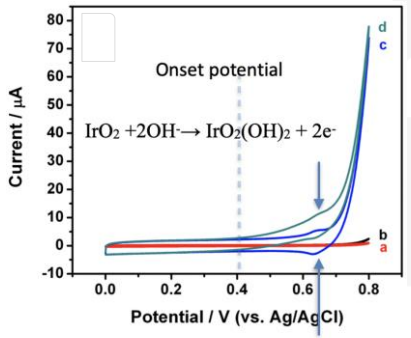
Key interests: Electrochemical-based chemical sensing and biosensing; Thin film modification for gas sensing in the biomedical and environmental applications.

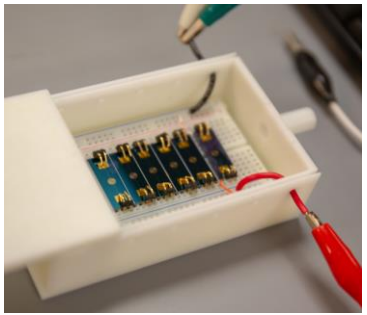
Chemical sensors
- ❖ pH sensors
- ❖ Glucose sensors
- ❖ Hydrogen peroxide sensors
- ❖ Heavy metal detection

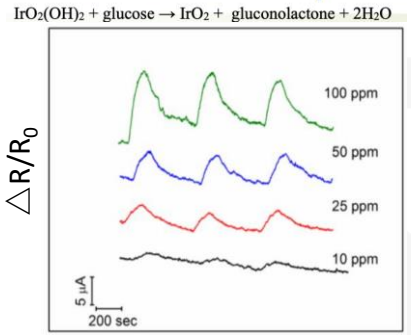
Gas sensing:
- ❖ Gas chromatography Mass Spectrometry
- ❖ Proton-Transfer-Reaction Mass Spectrometry
- ❖ Interdigitated resistant type gas sensors

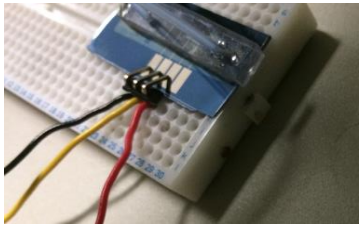
Microfluidic-based biosensors:
- ❖ Microliter volume pH sensing
- ❖ Single particle sensing











BACK

Dr. Xiaodong Jin

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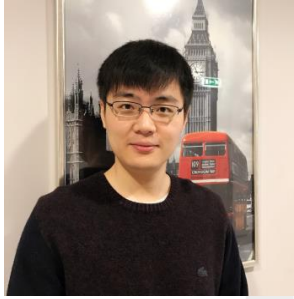
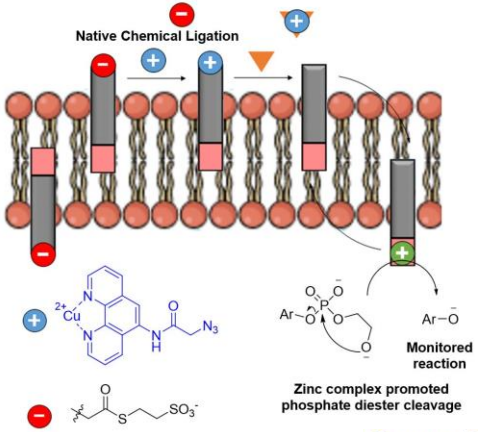
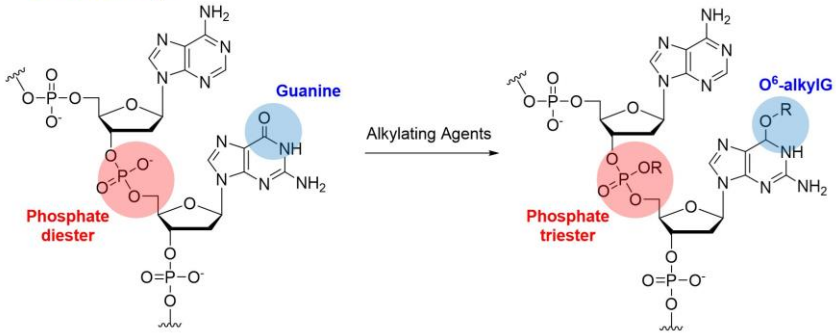
Key interests:
Organic Synthesis
Supramolecular Chemistry
Transition Metal Catalysis



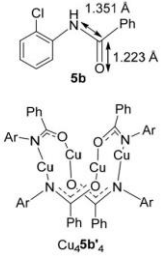
Signal Transduction System

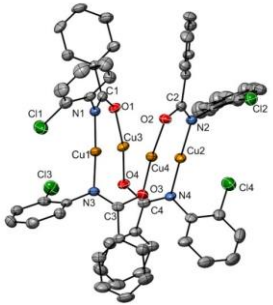


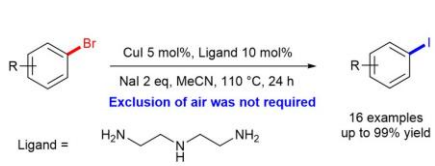
DNA damage

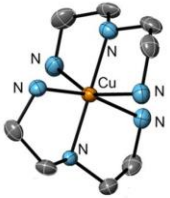


Copper Catalysis



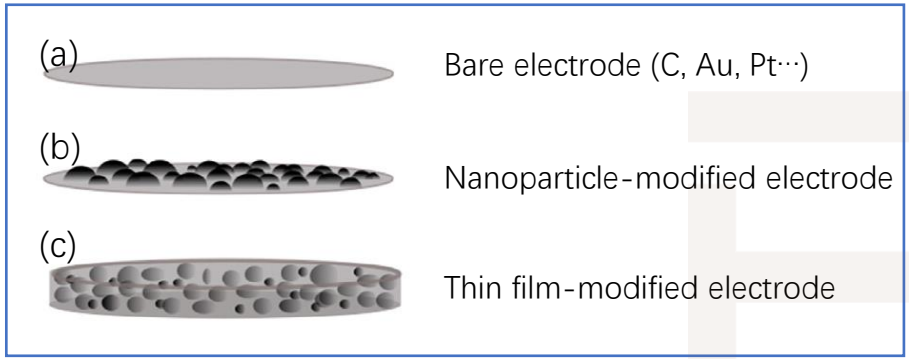






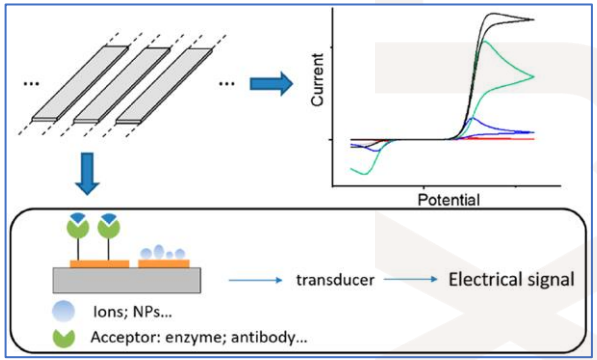
Dr. Danlei Li

Danlei.Li@xjtlu.edu.cn



Electrocatalysis

- Nano-electrocatalysts for energy reactions
- Fundamental study of electrochemical behaviour study of catalysts



Electroanalysis

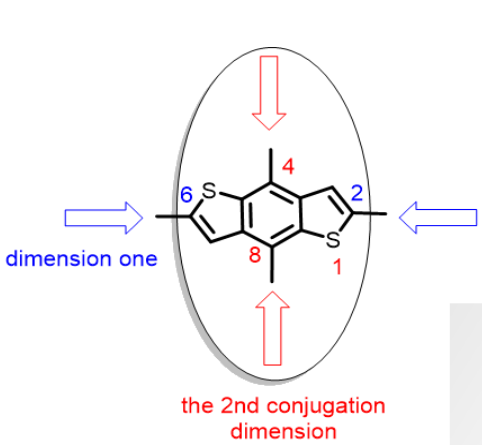
- Environmental sensors: phosphate sensor, arsenic sensor, pH sensors etc.
- Biological sensors: O_2 sensor in blood

[1] J. Electroanal. Chem. 2018, 826, 117. [2] Appl. Mater. Today 2020, 18, 100404. [3] J. Phys. Chem. Lett. 2020, 11 (4), 1497-1501. [4] ACS Sensors 2019, 4, 2250.

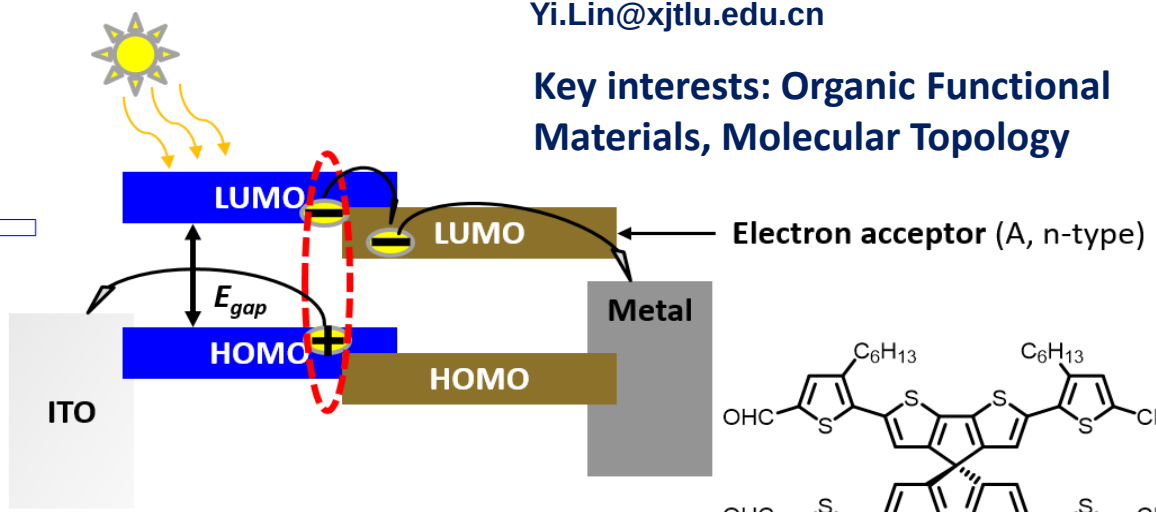
Dr. Yi Lin

Yi.Lin@xjtlu.edu.cn

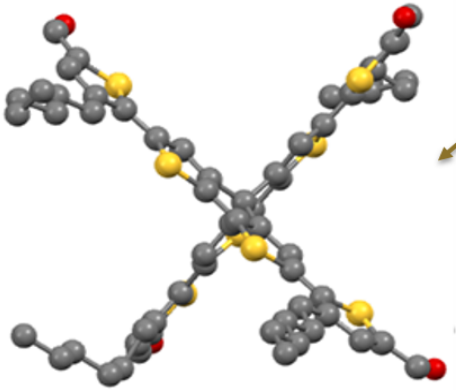
Key interests: Organic Functional Materials, Molecular Topology



Electron Donor (D, p-type)



SCPDT-TCHO



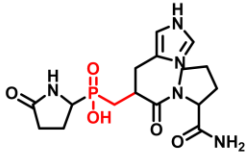
BACK

Dr. Magdalini Matziari

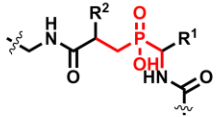
Magdalini.Matziari@xjtlu.edu.cn

Key interests:
Peptide Synthesis

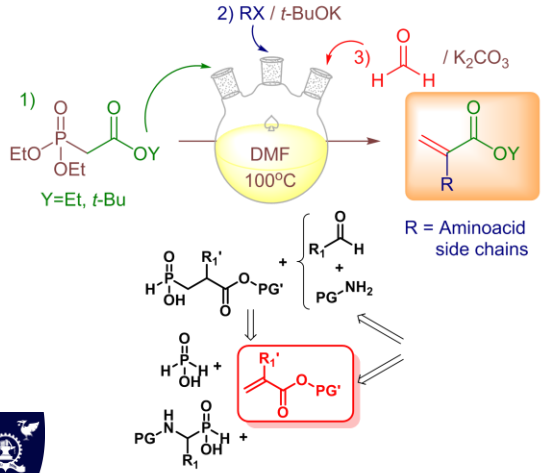
- Thyrotropin analogs

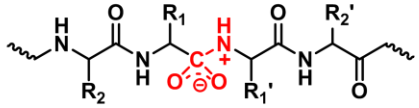


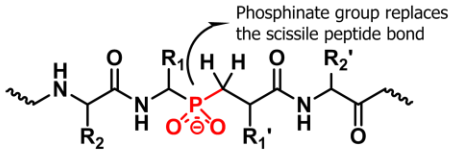
- Hepatitis C inhibitors

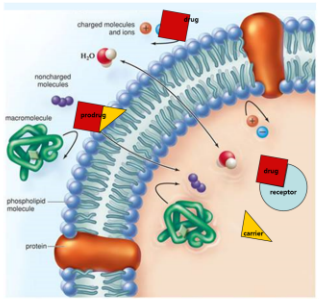


- Acrylates one-pot synthesis



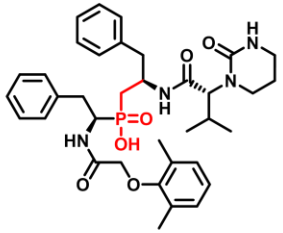




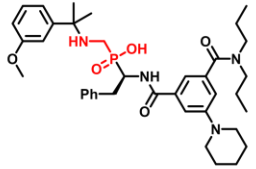


- Prodrugs development

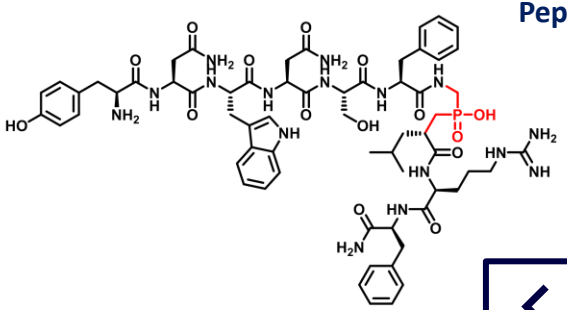
- HIV-1 Inhibitors



- Anti-malarial drugs



- Kisspeptin-10 analogs



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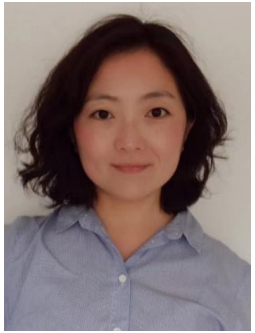

Dr. Xuan Xue

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Key interests: Polymer and surface chemistry, biomaterials and their biomedical applications.

Surfaces

- Surface chemistry
- Surface analysis
- Surface coating
- Surface initiated polymerization

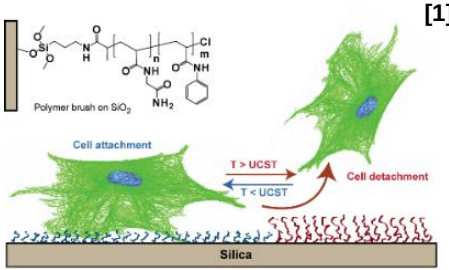
Polymer materials

- Controlled radical polymerization
- Polymer characterization
- Biomaterials in tissue engineering
- Biomaterials in anti-bacterial/viral fields

3D printing

- High-throughput screening
- Tissue engineering

[1]



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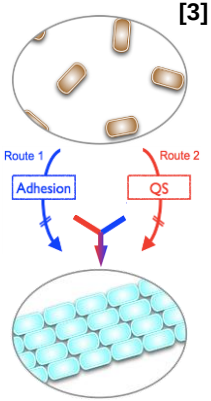
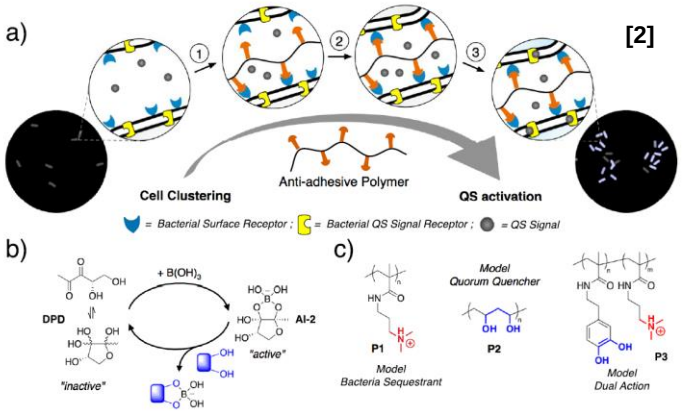


[2]



[1] J. Mater. Chem. B, **2017**, *5, 4926-4933.*

[2] Nat. Chem. **2013**, 5, 1058-1065

[3] Angew Chem Int. Ed. **2011**, 50, 9852-9856.

Dr. Li Yang

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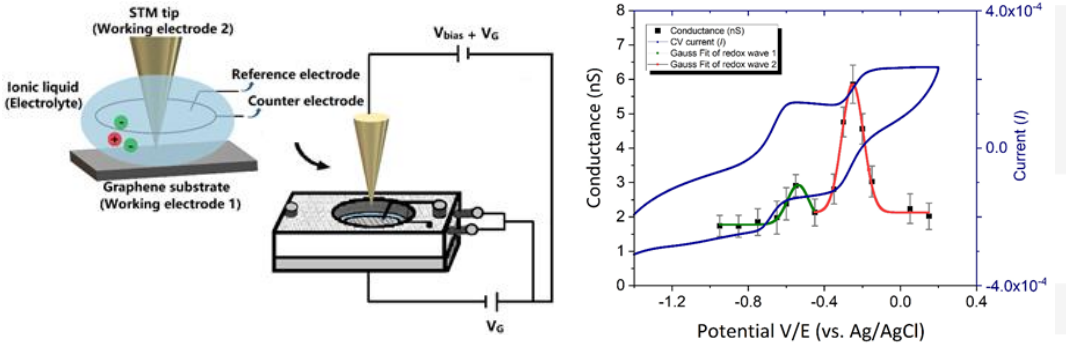
Molecular Electronics

- ❑ Fundamental properties of charge transport
- ❑ Electric and electrochemical properties of single molecular devices/large area monolayer devices

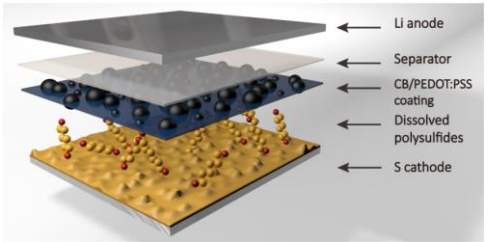
Energy Storage

- ❑ 2D heterostructures for novel electrodes
- ❑ High-performance batteries and supercapacitors
- ❑ Fundamental mechanism of ion transport and electrochemical reactions

Electrochemical Gating to Modulate Switching Behavior



A Novel Cell Configuration: Cathodic Interlayer



BACK

1. Nano Letters, 2016, 16, 6534. 2. Journal of Physical Chemistry Letters, 2017, 8, 5987. 3. Electrochimica Acta, 2019, 299, 479.

Dr. Qian Zhang

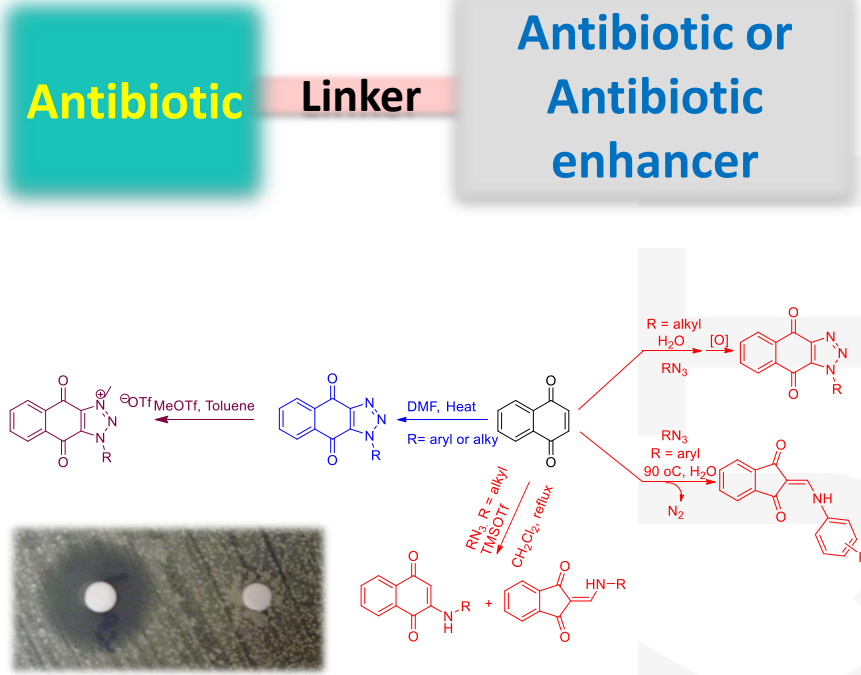
Qian.Zhang02@xjtlu.edu.cn

Key interests: Antibiotic Research and Organic/Medicinal chemistry

Antibacterial agents:
- ❖ Hybrid antibiotics
- ❖ Penicillin derivatives
- ❖ Oxazolidinones

Organic Synthesis:
- ❖ Green Chemistry
- ❖ Medicinal Chemistry
- ❖ New Synthetic Methodology

Carbohydrates Chemistry:
- ❖ Aminoglycosides
- ❖ Drugs containing carbohydrates



BACK

THANKS

Xi'an Jiaotong-Liverpool University

西交利物浦大學