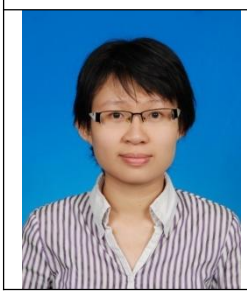
Directory of Expert – Department of Chemistry

JANET LIM HONG NGEE



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Brief CV

Professor Dr. Janet Lim Hong Ngee focuses on the synthesis of advanced functional materials for various applications such as energy storage, solar conversion and sensing. Her current interest in graphene, a two-dimensional sp^2-carbon hybrid, has resulted in promising research outputs including outstanding capacitance values for supercapacitors, platinum-free dye-sensitized solar cell and highly selective sensors. There is also a merger of devices to materialize single multifunctional devices like photo-supercapacitors and photo-electrochemical sensors. She has authored and co-authored more than 200 ISI-cited journal articles. International and national fund providers sponsor her research.

Current Research Interests

Graphene

Graphene is able to enhance chemical, electricial and mechanical properties of devices owing to its high electron mobility, flexibility, durability and ease of functionalization. The derivatives of graphene encompass inorganic and organic graphenous materials.

Supercapacitors

Modification of electrode materials is a vital factor that influences charge storage and delivery. The synthesized nanomaterials are subjected to electrochemical measurements to analyse their performance for real applications.

Sensors

The synthesis of sensing materials is an exciting field that employs various approaches, resulting in a myriad of morphological structures.

Multifunctional devices

A photo-supercapacitor is able to convert, store and deliver electrical energy in a single device. Meanwhile, a photo-electrochemical sensor exhibits excellent ability to detect analytes under the illumination of light. Materials science and engineering play a vital role in ensuring the maximum conversion, storage and delivery of electrical energy in a photo-supercapacitor, and the manifestation of photocurrent in a photo-electrochemical sensor.

Link to Postgraduate Field of Study

Nanotechnology
Materials Science
Electrochemistry