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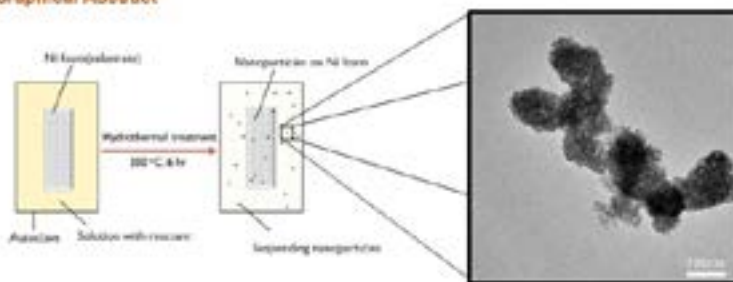
## Manganese acetylacetonate as the precursor of high capacitance manganese oxides nanoparticles – the only active component in the supercapacitor electrode

**Alice W M Chan**

The Chinese University of Hong Kong, Hong Kong

Supercapacitors are of attractive for energy storage applications, such as back-up power supplies for batteries and boosting power for vehicle acceleration. Researchers are seeking for materials which outperform the high-capacitance ruthenium oxide in terms of its cost and abundance cost effective application in the reality. One of the suitable materials is manganese dioxide, which theoretical capacitance is as high as 1370 F/g. However, the experimental capacitances of the synthesized manganese oxides were usually below 500 F/g even if the material was fabricated with other materials (e.g. gold, graphene oxide, etc.) for property enhancement. In this research, manganese oxides nanoparticles (~10nm) are synthesized by hydrothermal treatment of manganese (II) acetylacetonate in ethanol. The electrode for measurement is prepared in a similar way by putting a piece of nickel foam in the reaction mixture. Although the particles are of low crystallinity, its capacitance is over 700 F/g at 18 A/g as confirmed by the measurement in galvanostatic charge/discharge method. Other analyses and characterizations of the pseudocapacitor are done by including CV, ICP, TEM and XRD etc.

### Graphical Abstract



### Biography

Alice W M Chan received her Bachelor Degree in Chemistry from the Chinese University in Hong Kong in 2016. She is now a postgraduate student with the supervision of Prof. Jimmy C Yu in the same institution. Her main research interest is in Environmental Chemistry, focusing on photocatalysis and supercapacitor.

alicecwm@link.cuhk.edu.hk

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