

## Effective nanocomposite of 2D MoS<sub>2</sub> nanosheets/graphene oxide: Investigation of electrochemical application

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Recently, MoS<sub>2</sub> and graphene composites show the excellent electrical and electroactive materials for energy storage devices because of their variable oxidative properties and high conductivity. In this work, a nanocomposite of 2D MoS<sub>2</sub> nanosheets and graphene oxide (GO) [MoS<sub>2</sub>/GO] was synthesized by the hydrothermal process at 180°C for 24h and utilized as electroactive materials for fabrication of supercapacitors. The synthesized nanocomposite presented the uniform distribution of well-grown MoS<sub>2</sub> nanosheets over the GO sheets. The synthesized MoS<sub>2</sub>/GO nanocomposite was thoroughly examined in terms of various characterization tools to confirm the crystalline, structural and composition properties of MoS<sub>2</sub>/GO composite. To investigate the electrochemical properties, the synthesized MoS<sub>2</sub>-GO nanocomposite as electroactive electrode showed the good specific capacitance of 582 Fg<sup>-1</sup> at 0.01 Vs<sup>-1</sup> with good cyclic stability after 200 continuous cycles. The good supercapacitor properties are expected to be a highly promising candidate for application in effective energy storage devices.