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Undulation induced tuning of electron acceptance by edge-oxidized graphene oxide

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ABSTRACT

Edge-oxidized graphene oxide (EOGO) nanosheets are good acceptors of electrons. We have employed a suitably designed pyrene-tailed fluorescent probe to establish that the electron acceptability of EOGO can be tuned by undulation of the GO sheet. Comparison between EOGO and single-walled carbon nanotubes (SWCNT) on electron acceptance from the probe molecule shows that the efficiency of π-π stacking between pyrene and the graphene sheet plays the key role.

Keywords: edge-oxidized graphene oxide; single-walled carbon nanotube; π-π stacking; fluorescence quenching; electron acceptability