Short Review

A Short Review of Synthesis of Graphdiyne and Its Potential Applications

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Graphdiyne(GDY), a novel kind of two-dimensional carbon allotrope comprising sp- and sp²-hybridized carbon atoms, was firstly proposed by Baughman group in 1987 and for the first time synthesized by Li group in 2010. The structure of GDY is related to that of graphene, but with the introduction of butadiyne linkages ($-C\equiv C-C\equiv C-$) to form 18-C hexagons, which makes it possess large conjugated system, wide surface spacing, high chemical stability and semiconductor performance. The advanced and unique properties of GDY make it highly promising nanomaterial for applications in energy, catalyst, optoelectronic, separation membrane and sensor, and so on. Herein, we briefly review the recent progresses in the theoretical and experimental researches of GDY's synthesis, particular structure and properties, as well as the applications.

Keywords: GDY, catalyst property, semiconductor material, nanotechnology applications

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