Facile synthesis and magnetic behavior of 1D g-C3N4

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The graphitic carbon nitride (g-C3N4) material has a unique electronic structure, semiconducting properties, chemical, and thermal stability. These properties make it a suitable candidate for photocatalytic applications. The facile and large scale synthesis of g-C3N4 having new microstructures is always a challenge for its commercial application. A new strategy has been developed to synthesize open-ended Ni encapsulated 1D g-C3N4 nanotubes by using melamine precursor. The g-C3N4 nanotubes synthesized through a new strategy have a length, and diameter of 20 ??m and ~110 ?nm respectively, with a wall thickness of ~10 ?nm. The magnetic measurements show the low coercive field with a magnetization saturation close to 2 emu/gr at 5 ?K, which may be due to the multi-domain nanoparticle. The magnetization saturation increases with decreasing the temperature.

Carbon materials

Nanoparticles

Tubular g-C3N4

Carbon nitride

Chemical stability

Electronic structure

Nanotubes

Photocatalytic activity

Saturation magnetization

Coercive field

Commercial applications

Facile synthesis

Large scale synthesis

Magnetic behavior

Magnetization-saturation

Photocatalytic application

Semi-conducting property

Nanomagnetics