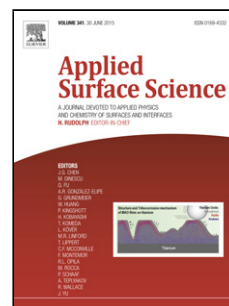


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Facile Synthesis of Porous Graphene-like Carbon Nitride Nanosheets  
with High Surface Area and Enhanced Photocatalytic Activity via  
One-step Catalyst-free Solution Self-polymerization

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### Research highlights

- (1) Porous graphite carbon nitride nanosheets (g-C<sub>3</sub>N<sub>4</sub>) and quantum dots can be achieved via one-step catalyst-free solution self-polymerization from a single melamine precursor by adjusting reaction time.
- (2) The preparation method of porous g-C<sub>3</sub>N<sub>4</sub> nanosheets is simple and low cost, which is beneficial to mass production for many potential applications in the future.
- (3) The carbon nitrogen quantum dots and nanosheets both emit stable and bright blue luminescence under 365 nm UV excitation, showing good PL conversion property.
- (4) The resultant porous g-C<sub>3</sub>N<sub>4</sub> nanosheets with the best photodegradation capacity provided the surface area of 669.15 m<sup>2</sup>/g, which is superior to the surface area of any other porous g-C<sub>3</sub>N<sub>4</sub> reported to date.

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