Title:	Optimizing the cocatalyst deposition for improved charge transfer of g-C3N4 under light irradiation
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Keywords:	Renewable sources Solar energy Hydrogen energy Utilize solar energy
Issue Date:	Apr-2024
Publisher:	IISER Mohali
Abstract:	The drive to harness visible light for hydrogen (H2) generation from water (H2O) has spurred a surge in demand for economical, readily available semiconductor photocatalysts to promote sustainable energy production. Despite the potential promise of graphitic carbon nitride (g-C3N4) as a cost-effective, metal-free photocatalyst, its efficacy has been hindered by challenges such as limited absorption of visible light, constraints imposed by stacked layers impeding mass transfer, and suboptimal charge-transfer dynamics. Numerous efforts have been undertaken to address these issues through layer exfoliation and photophysics adjustment, yet they often culminate in either intricate synthetic procedures or disappointingly low yields. In this study, we have tailored the cocatalyst (Pt) deposition on the surface of g-C3N4 by altering the deposition techniques. It was found that a prior impregnation method before the traditional in-situ photodeposition of Pt nanoparticles was beneficial than the in-situ photodeposition alone. The sequential deposition technique yields almost 6 times enhancement in the photocatalytic hydrogen evolution from water splitting by carbon nitride nanosheets under visible-light irradiation.
URI:	http://hdl.handle.net/123456789/5638
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