Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Growth of binary anatase-rutile on phosphorylated graphene through strong P-O-Ti bonding affords a stable visible-light photocatalyst

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S1. Raman spectra of **GO** before and after irradiation

S2. Raman spectra of **PGO** before and after irradiation

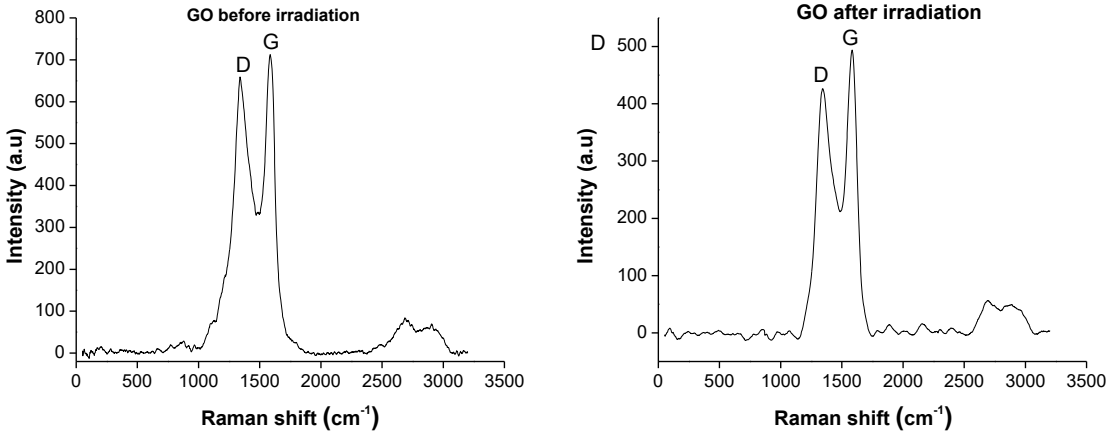
S3. Raman spectra of **GO@TiO_2** before and after irradiation

S4. Raman spectra of **PGO@TiO_2** before and after irradiation

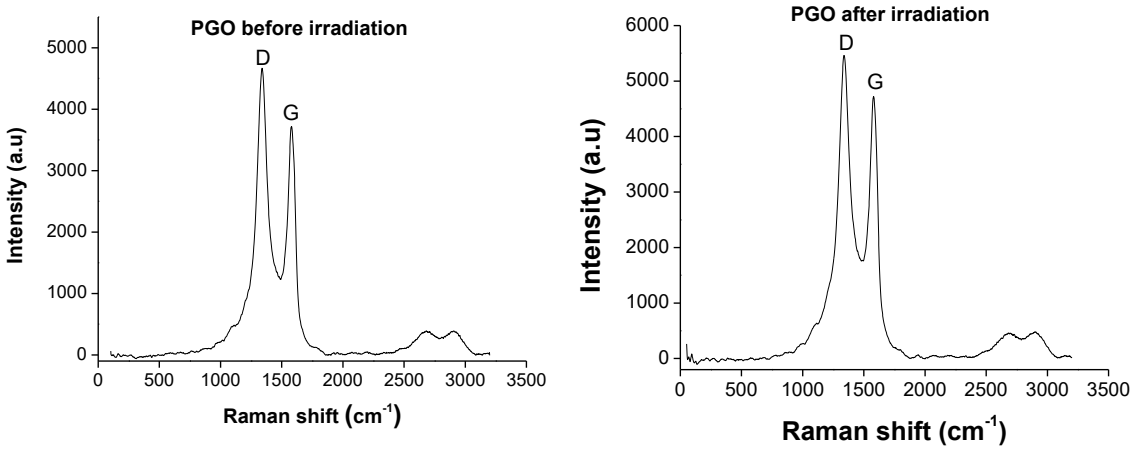
S5. Recycling experiments of **PGO@TiO_2-500**

S6. Visual observation of color change from blue to colorless indicates adsorption and degradation of methylene blue dye at different time intervals in presence of **PGO@TiO_2**

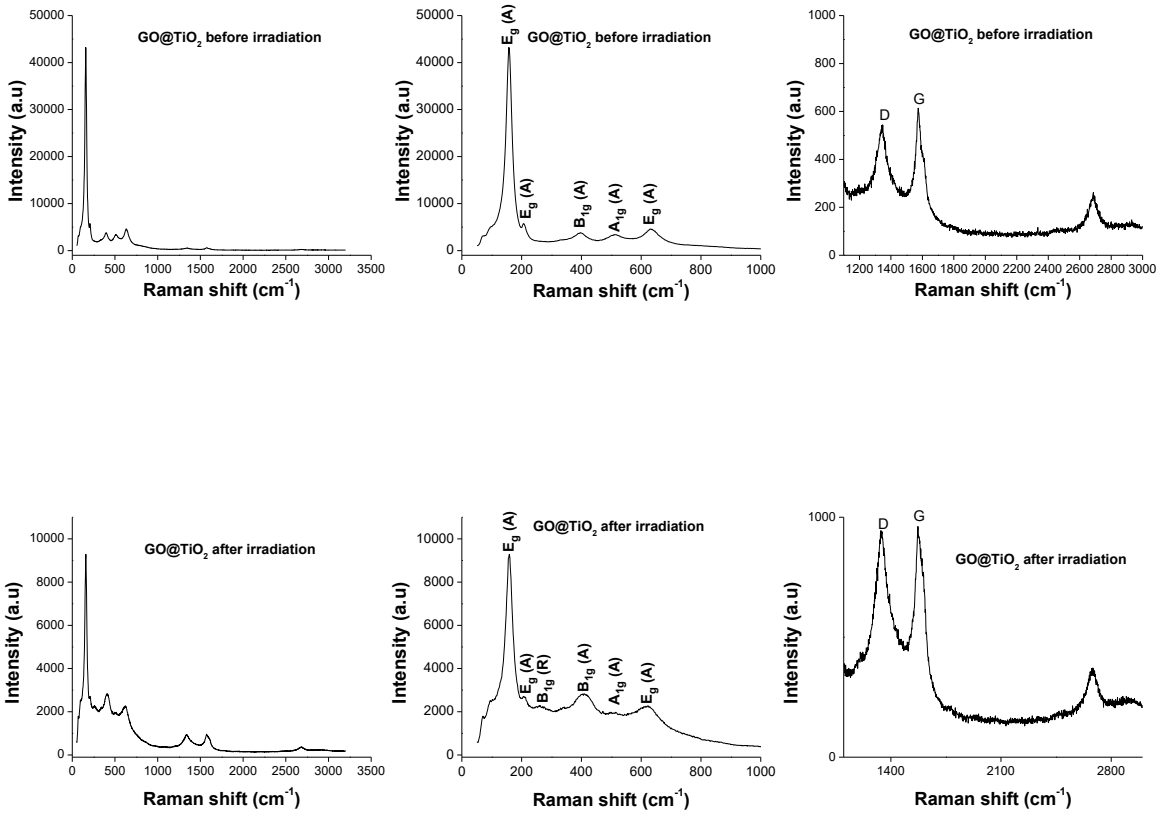
S1. Raman spectra of GO before and after irradiation



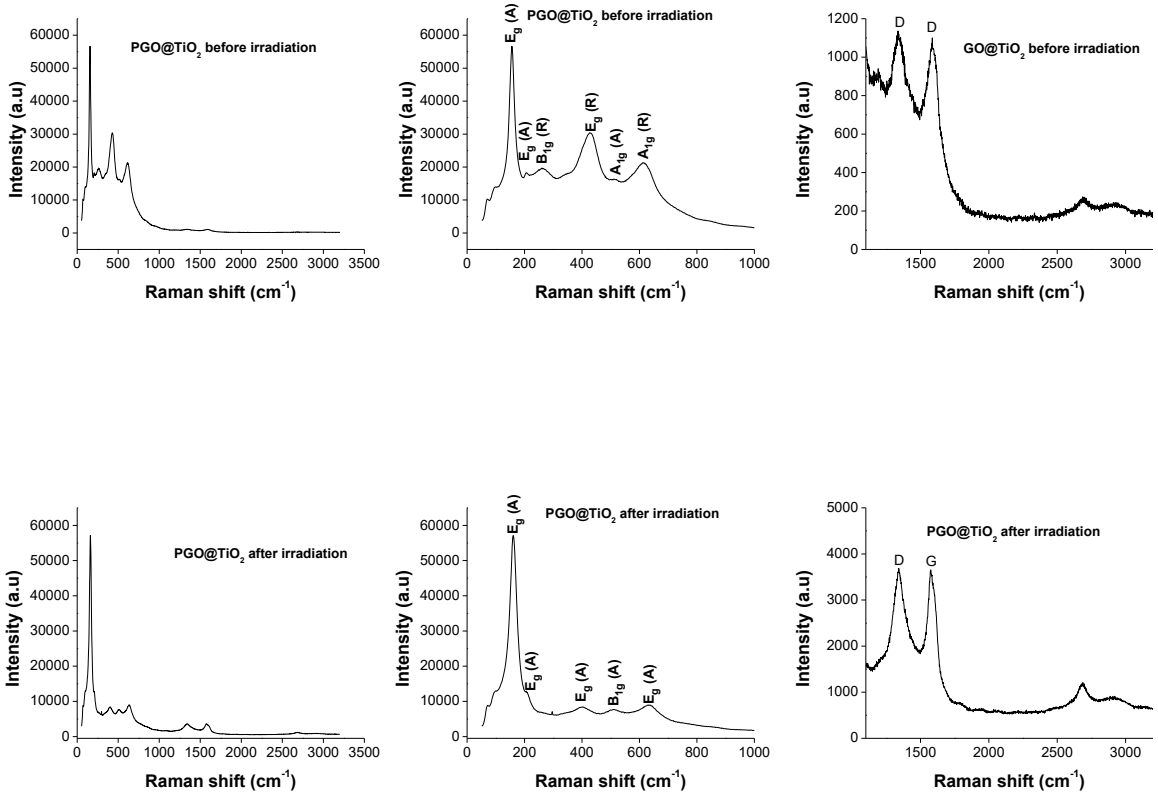
S2. Raman spectra of PGO before and after irradiation



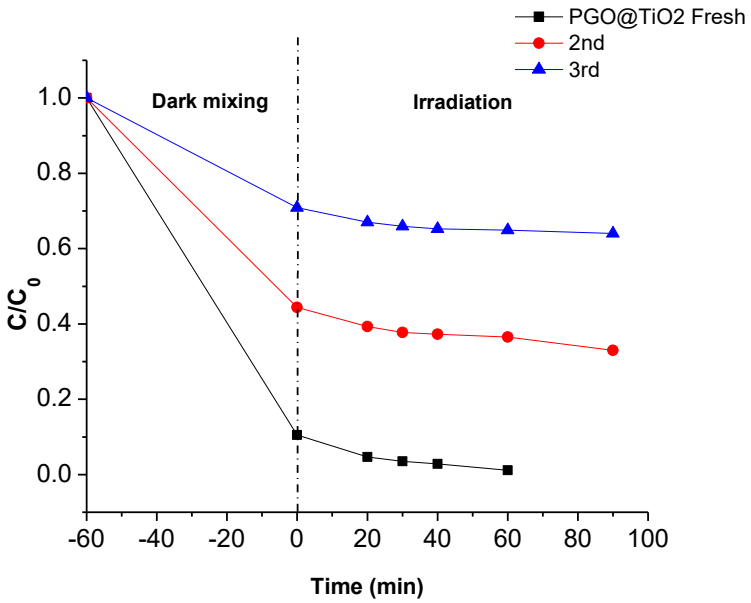
S3. Raman spectra of GO@TiO_2 before and after irradiation



S4. Raman spectra of PGO@TiO_2 before and after irradiation

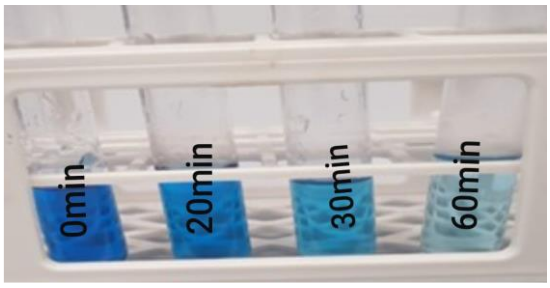


S5. Recycling experiments of PGO@TiO_2-500. Conditions : First catalytic run (fresh catalyst) 50 mg of the photocatalyst,10^{-4} mmol /L of methylene blue solution (80ml). For the reuses, the amount of the recovered catalyst (PGO@TiO_2-500) is used in a 10^{-4} mmol/L methylene blue solution (0.625mg of catalyst/ml of methylene blue solution). In all the runs, the photocalayst is suspended under dark conditions for 1h prior to the irradiation.



S6. Visual observation of color change from blue to colorless indicates adsorption and degradation of methylene blue dye at different time intervals in presence of **PGO@TiO_2**

Dark mixing



Irradiation