

High-Performance SrO-Co₃O₄ Nanoparticles Anchored on rGO for Clean Energy: Hydrogen Generation from Formic Acid and Photocatalytic Dye Degradation

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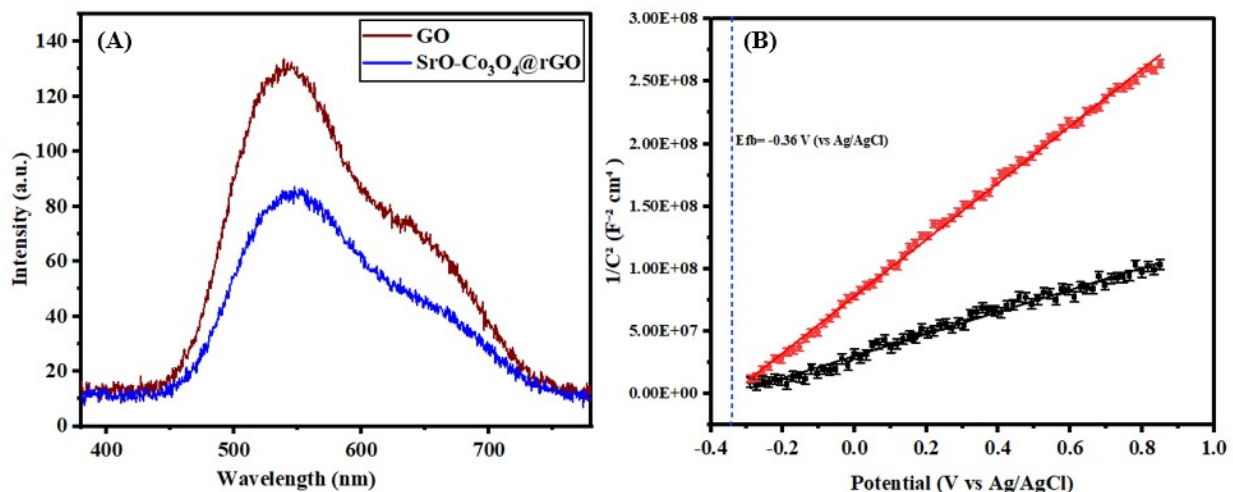


Fig.S1. (A) Mott–Schottky plots showing n-type behavior and higher carrier density of SrO-Co₃O₄@rGO ($E_{fb} \approx -0.36$ V vs Ag/AgCl). (B) PL spectra showing reduced emission for SrO-Co₃O₄@rGO, indicating suppressed charge recombination.

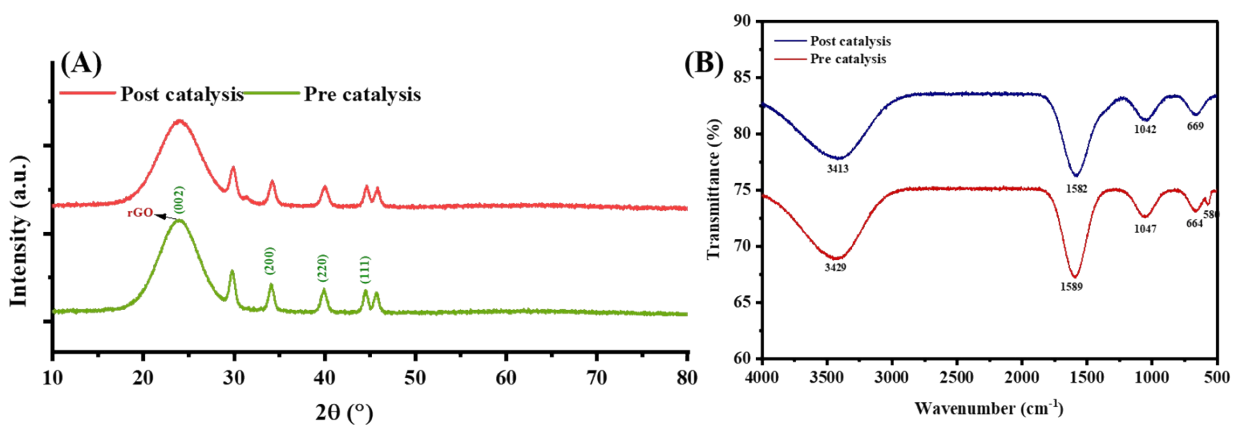


Fig.S2 (A) Post-catalysis XRD patterns of SrO-Co₃O₄@rGO showing preserved crystalline phases of SrO and Co₃O₄, indicating structural stability after reaction. (B) Post-catalysis FTIR spectra of SrO-Co₃O₄@rGO confirming retention of functional groups and metal-oxygen (M-O) bonding, demonstrating chemical stability of the catalyst.

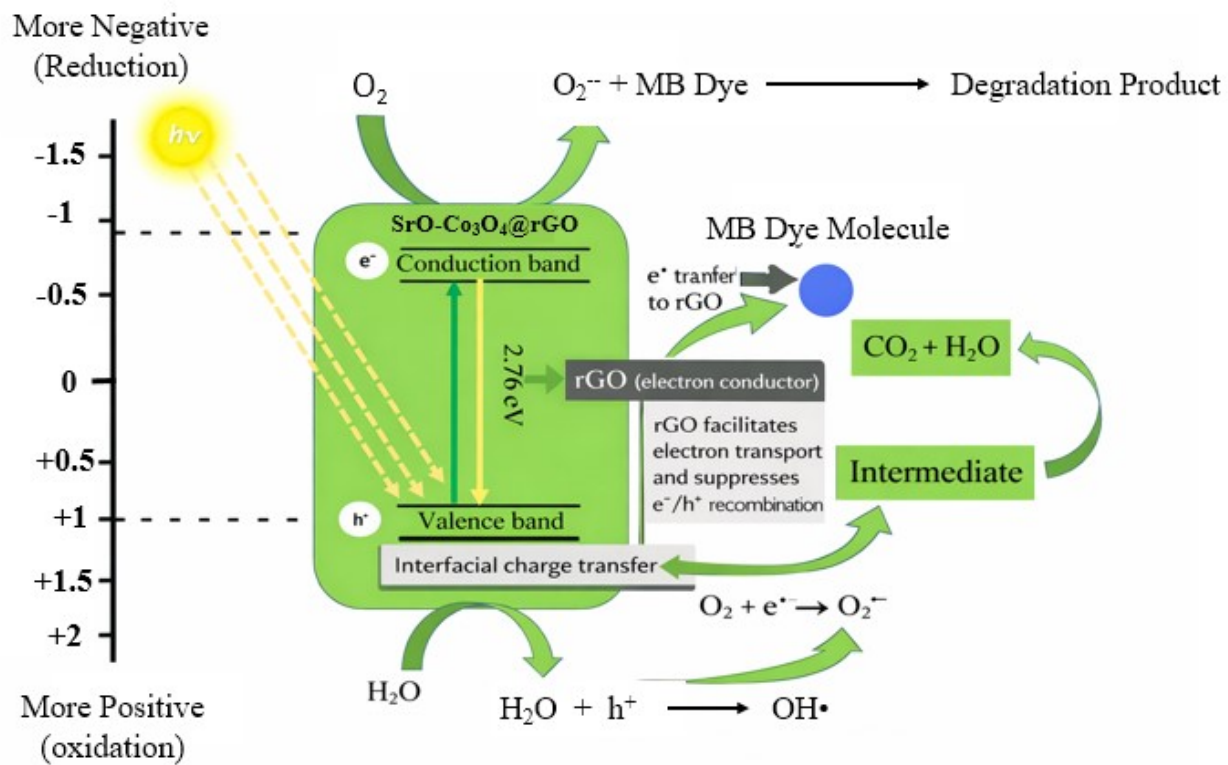


Fig. S3 Mechanistic illustration of dye degradation using $\text{SrO-Co}_3\text{O}_4@\text{rGO}$

Table S1. Comparison of MB degradation efficiency of SrO-Co₃O₄@rGO with recently reported GO/rGO-based photocatalysts.”

Catalyst	Sample	Degradation efficiency (%)	Time (min)	Reference
TiO₂-PRGO	MB	100	90	[75]
GO-ZnO-Ag	MB	100	40	[76]
WN-C-RGO	MB under UV Light/ Sunlight	90	120	[77]
GO-SnO₂	MB	89	60	[78]
MIL-100(Fe)/GO (1M8G)	MB	95	210	[79]
GO/ZnO/lignin	MB	98	30-60	[80]
SrO-Co₃O₄@rGO	MB	96	30	This Work