Photocatalytic water splitting by using $(Sr_xLa_{1-x})TiO_3$-SiC system under visible light irradiation

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Energy consumption covers the depletion of fossil fuels and serious environmental problems accompanying their combustion. Hence, a new form of energy that is clean, renewable, cheap, and a viable alternative to fossil fuels is needed. Hydrogen is considered as an ideal fuel for the future. Photocatalytic water splitting is a promising technique to produce hydrogen from water by using photocatalyst.
Silicon carbide (SiC) is not a common photocatalyst for water splitting, eventhough it shows photocatalytic activity which was reported in previous researches. In this research, (SrxLa1-x)TiO3 will be coupled with SiC to increase the photocatalytic activity in splitting the water. Nanosize particles of SiC were mixed with precursors of (SrxLa1-x)TiO3, then spray pyrolyzed at 900°C with 4L/min air flow as gas carrier. SiC is expected to slowing down the electron hole recombination. The photocatalytic activity measurement was conducted under visible light irradiation (>400 nm). XRD, Raman and SEM were conducted to reveal the morphology and elements contained by photocatalyst particles.