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Vanadium sulfide sub-microspheres: A new near-infrared-driven photocatalyst

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Abstract: Recently, finding a novel near-infrared (NIR) photocatalyst has been the focus in photocatalysis. Here, VS₄ sub-microspheres with a chain-like structure were prepared via a facile solvothermal method. As a new photocatalyst, it presents excellent NIR photocatalytic and photoelectrochemical (PEC) activity. Theoretical calculations and experimental results demonstrate that the improved NIR photocatalytic property originated from the narrow band gap of VS₄, which significantly improves the NIR light absorption.

Keywords: Vanadium sulfide; near-infrared; photocatalyst; photoelectrochemical

1. Introduction

In recent years, photocatalysts have gained great attention due to their potential applications in energy conversion and environmental amelioration [1]. The UV

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