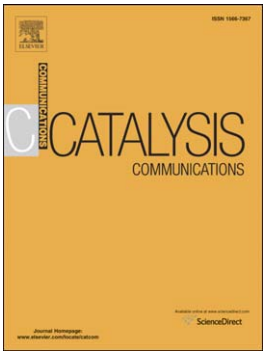

Photocatalytic activity of Cu_2O supported on multi layers graphene for CO_2 reduction by water under batch and continuous flow

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Photocatalytic activity of Cu_2O supported on multi layers graphene for CO_2 reduction by water under batch and continuous flow

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Abstract

The photocatalytic activity of Cu_2O supported on multi-layers graphene for CO_2 reduction by water was studied under two hydrodynamic environments, in a slurry batch reactor and in a capillary reactor with the catalyst immobilized on the wall. Under both conditions, the major photoproduct was hydrogen observed in the gas phase, accompanied by lesser amounts of ethanol present in the aqueous solution. The maximum production rates were 2031 and 545 □mol g^{-1} h^{-1} for H_2 and CH_3CH_2OH, respectively, and were found under the hydrodynamic mode attained in the capillary reactor.

1. Introduction

There is much current interest in the photocatalytic CO_2 reduction by H_2O with the long term goal of converting solar energy into fuels [1-4]. In this context it has been recently reported that *Cu_2O* nanoplatelets on multi layers graphene and presenting preferential 2.0.0