عنوان مقاله:

Preparing Hematite Nanomaterials for Photoelectrochemical Water Splitting

محل انتشار:

دهمین کنگره سرامیک ایران (سال: 1394)

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خلاصه مقاله:

A new nanostructured α-Fe۲O۳ photo electrode synthesized through chemical vapor deposition ispresented. The α-Fe۲O۳ films consist of nano platelets strongly oriented perpendicular to theconductive glass surface. This hematite morphology was never obtained before and is strictlylinked to the method being used for its production. Structural, electronic, and photocurrentmeasurements are employed to disclose the nano scale features of the photo anodes and theirrelationships with the generated photocurrent. α-Fe۲O۳ films have a hierarchical morphologyconsisting of nano branches. The process parameters mainly affect the microstructure, thedensity, the roughness, and the photoelectrochemical (PEC) activity. The highest photocurrent isshown by the photo anodes with the best balance between the platelets density and roughness.The so obtained hematite hierarchical morphology assures good photocurrent performance andappears to be an ideal platform for the construction of customized multilayer .architecture forPEC water splitting

کلمات کلیدی:

.photoanodes, α-Fe۲O۳ ,CVD process ,photoelectrochemical (PEC) activity