

## عنوان مقاله:

Molecular hydrogen production by radiolysis of water on the surface of nano-ZrO<sub>2</sub> under the influence of gamma rays

## محل انتشار:

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## خلاصه مقاله:

In this research, the radiation-heterogeneous processes of water decomposition on the surface of zirconium dioxide nanoparticles (n-ZrO<sub>2</sub>) were studied. The kinetics of buildup of molecular hydrogen during the radiolytic processes of water decomposition was also examined. The production of H<sub>2</sub> and H<sub>2</sub>O<sub>2</sub> through water radiolysis was investigated to develop a computational model and disclose the kinetic behavior of water radiolysis. The enthalpy of ZrO<sub>2</sub> nanoparticles was studied at the temperature range T=۱۲۰۰-۲۹۰۰ K, in which ZrO<sub>2</sub> nanoparticles has a two-phase transition. Some of the electrons were transported to the surface of the nanoparticles during the physical and physicochemical stages of the process and emitted into the water. At the same time, the migration of energy carriers in radioactively active oxide compounds changed at different intervals depending on the composition, structural stability, and electro-physical properties of the oxides.

## کلمات کلیدی:

Hydrogen generation, Nano zirconium oxide, Enthalpy, Water splitting, γ-radiation

## لینک ثابت مقاله در پایگاه سیویلیکا:

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