

**ABSTRACT:**

With the increasing energy costs and shortage of oil reserves, production and supply, the need of new energy sources becoming popular in recent days. In concern with global warming and climate change by emission of carbon dioxide with fossil fuel particularly coal has increased the importance of hydrogen. The Production and the enhancement of hydrogen on large scale is a goal towards the revolution of green and cheap energy. Photo catalysis and electrolysis of water are the important methods for production of hydrogen from water. In this paper the role of electrolyte as a photo catalyst was studied during electrolysis of water. The Production and the enhancement of hydrogen from the water have been investigated under the action of diode pumped solid state laser with second harmonic of wavelength 808nm. The efficiency of the hydrogen and oxygen yields was found to be greater than the normal Faradic efficiency. The parametric dependence of the yields as a function of laser beam power, irradiation time is shown. Laser focusing effect and parameters of the electrolysis fundamentals were carefully studied.