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**NANO-STRUCTURED MATERIALS FOR THE  
CONVERSION AND STORAGE OF SUSTAINABLE  
ENERGY**

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**Abstract**

The paper is an overview of several recent studies on nano-structured materials, with emphasis on novel solar cells, Photo-Electrochemical Cells (PECs), and on hydrogen storage, for the conversion and storage of solar energy.

Nano-structured metal oxide catalysts improve the kinetics of hydrogen sorption in metal hydrides.

The presently-achieved conversion efficiency of 5% shows that this type of solar cell is a promising concept. It is anticipated that the 3D solar cells will reach efficiencies of over 8% in the coming years, and will start to replace silicon-based solar cells.

*Keywords:* solar cell, nano-materials, energy storage, photo-electrolysis

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