

First Euro-Mediterranean Conference on Materials and Renewable Energies (EMCMRE-1) 21-25 November 2011**New devices based on Si-rich and C-rich a-Si_{1-x}C_x thin films**

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Abstract:

In this paper, we present an experimental study on elaboration of Si-rich and C-rich thin films of hydrogenated amorphous silicon carbide (a-Si_{1-x}C_x:H) using a co-sputtering d.c magnetron of single crystal Si target and who deposited onto, different mass varying 32 to 86 of sprigs of polycrystalline 6H-SiC with dimension 10x5 mm².

A comparative study of structural and optical properties has been investigated and its applications in environmental field.

The films a-Si_{1-x}C_x:H were investigated by scanning electron microscopy, UV-visible spectrophotometer, infrared spectroscopy and photoluminescence. Different devices structures based on both thins films have been investigated as gas sensors and photovoltaic applications.

Keywords: silicon carbide; amorphous; thin films, sputtering;