



## Surface area effect of porous silicon in the electrochemical hydrogen storage

**Dr saloua merazga**

*Centre de Recherche en Technologie des Semi-conducteurs pour l'Energétique (CRTSE), Algiers, Algeria*

### Abstract:

In order to increase the capacity of hydrogen storage of the porous silicon and the specific surface area, we prepared different type of porous silicon: nanoporous and mesoporous silicon by using electrochemical anodization. After that, we investigated this layers by: SEM microscopy, SIMS spectrometry, contact angle, cyclic voltammetry, electrochemical spectroscopy (EIS) and charge / discharge galvanostatic. The SIMS profiles at depth performed on PS layers before and after the hydrogen sorption show the increase of hydrogen concentration from  $3.5 \times 10^{20}$  atm / cm<sup>3</sup> to  $6.8 \times 10^{21}$  atm / cm<sup>3</sup> which confirms the sorption and the storage of H<sup>+</sup> ions in the anode(PS). The measured discharge capacity is of the order of 477 mAh /g with a coulompicefficiency of the order of 94% for the nanoporous silicon which confirms that this material is could be a promising candidate for the storage of hydrogen.

### Biography:

Dr saloua merazga, Centre de Recherche en Technologie des Semi-conducteurs pour l'Energétique (CRTSE), Algiers, Algeria. is Submitted his abstract on the conference on Frontiers in Nanotechnology and Nanomaterials; May 04-05, 2020; Vienna, Austria.

### Recent Publications:

1. Dr saloua merazga et al: Investigation of porous sili-



con thin films for electrochemical hydrogen storage, 2019.

2. Dr saloua merazga et al: Retraction notice to "New devices Si-rich and C-rich a-Si<sub>1-x</sub>C<sub>x</sub> thin films gas sensors based" [Journal of Alloys and Compounds 579 (2013) 365-371], 2018.
3. Dr saloua merazga et al: Ab initio study of hydrogen storage in Mg<sub>1-x</sub>Al<sub>x</sub> and Mg<sub>1-x</sub>Y<sub>x</sub> alloys, 2018.
4. Dr saloua merazga et al: Effect of Carbon Content onto Silicon-Carbon Alloys Properties Elaborated For The Passivation of Monocrystalline Solar Cell, 2018.
5. Dr saloua merazga; Etude des propriétés des couches minces de carbure de silicium amorphe : Application couche antireflet et passivation, 2018

**Frontiers in Nanotechnology and Nanomaterials; May 04-05, 2020; Vienna, Austria**

**Citation:** Dr saloua merazga; Surface area effect of porous silicon in the electrochemical hydrogen storage; Nanotechnology 2020; May 04-05, 2020; Vienna, Austria.