

Abstract Submitted  
for the MAR08 Meeting of  
The American Physical Society

**Porous Silicon Structures under action microwave Radiation:  
Charge Carrier Heating Effects** EUGENIJUS SHATKOVSKIS, JONAS  
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Porous silicon (por-Si) is one of modern nanomaterials, which is intensively investigated recently. The action of microwave radiation is only slightly investigated on por-Si, however. Basically there are papers intended to application of por-Si as substrates in microwave and opto-electronic interconnects. Action microwave radiation (MW) often manifests itself through effects of charge carrier heating in semiconductors. Since the energy quanta of MW radiation are too small to challenge any quantum jumps in common semiconductors, it is likely that carrier heating can be responsible for effects arising in por-Si under MW radiation also. This question is discussed in present contribution based on experimental study of electrical conductivity and electromotive force (emf) in por-Si structures under the action of 10 GHz frequency MW radiation pulses. Two-terminal por-Si containing structures were made by usual technology of electrochemical etching of p-type, 0, 4 Ohm·cm Si plates in the HF: Ethanol=1:2 electrolyte. It has been shown that experimentally observed decrease of the resistance of the samples and rise of emf can be explained both assuming concept of hole heating, by MW radiation in fractal-like percolation grid of por-Si structure.

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Date submitted: 29 Nov 2007

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