

# Forming of Porous Silicon Layers for PV Applications

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**Abstract.** Porous silicon structures are different from those of the bulk crystalline material and make it attractive for use in a variety of important technological applications - thin film transistors, solar cells and other important optoelectronic applications. Simple and effective method for production of porous Si layers is anodic etching in an electrochemical cell. We prepared inhomogeneous porous structures by anodic etching method with gradually modified electric current during etching procedure. The properties of the formed layers were investigated by atomic force microscope, Raman scattering and spectral reflectance analysis. The use of fractal methods in characterizing the properties of the microstructure of formed layers provides information about their non-Euclidean properties, surface structure inhomogeneity, texture anisotropy, and bifurcations. Raman scattering experiment provide information about the development of porous Si connected with etching treatment and analysis of the spectral reflectance provided information about the layer thicknesses. The combination of AFM and optical methods provide information necessary for optimization of forming porous Si layers.