Thin Films against Multilayers of a-Si:H: Comparative Study on Optical Properties

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Abstract. This paper presents studies on structure and optical properties of a-Si:H thin films and multilayers of a-Si:H prepared at two different hydrogen dilutions. For all samples detected as amorphous with low microstructure factor UV Vis transmittance spectra were used to extract refractive indices, absorption coefficients and optical band gap energies. Refractive indices decrease with the thin film/multilayer thickness what means materials of lower density. On the contrary optical band gaps determined via the Tauc procedure were found to be blue-shifted with increasing both the film and multilayer thickness what is beneficial for solar applications.