ABSORPTION, PHOTOCONDUCTIVITY AND CURRENT-VOLTAGE CHARACTERISTICS OF AMORPHOUS $Ge_{0,90}Si_{0,10}:H_x$ SOLID SOLUTIONS

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The amorphous films of $Ge_{0,90}Si_{0,10}:H_x$ solid solutions (where $x = 1.3 \div 23.7$ at.%) were obtained by plasma-chemical deposition. The film thickness is found to be 0.5-1.0 μm). The substrate was heated to 420 K, and the deposition rate was $r = 0.3 \div 0.5$ Å/s. Deposition has been carried out in argon-hydrogen atmosphere in vacuum of 10^{-5} Torr. The optimum sputtering conditions have been obtained by a magnetic field magnetron at a frequency of 50 MHz. The optical absorption coefficient α is 10^4 cm^{-1}, the absorption edge E_0 and the electron recombination time τ depend on x and are equal to 0.76-1.17 eV and 10^{-6}-10^{-5} s, respectively. The quality coefficient β for Pd/a-$Ge_{0.90}Si_{0.10}:H_x$ ($x = 23.7$ at.%) elements changes from 2 to 4 due to a lot of defects at the interface.