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Effect of microcrystalline structure on optical and electrical properties of silicon films deposited by PECVD

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Abstract:

Microcrystalline silicon thin films were prepared by plasma enhanced chemical vapor deposition on N-type silicon substrate. The growth speed is controlled by the dilution of SiH_4 gas in helium or hydrogen. The optical band gap is obtained from absorption spectra. The electrical properties are investigated by current-voltage and capacitance-voltage measurements and by conductance spectroscopy.