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Effect of annealing conditions on polycrystalline silicon produced by the inverted aluminum induced crystallization of amorphous silicon films on glass substrates.

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The effect of various annealing treatments on the structure properties of crystalline silicon (c-Si) produced by the inverted aluminum induced crystallization of amorphous silicon (a-Si) films was studied. The surface morphology and grain size of c-Si films were observed by optical microscope, SEM and AFM. X-ray diffraction and Raman spectroscopy were used to study quantity of Si crystallization due to thermal annealing. Results showed that the c-Si with average grain size of 27 nm in a (111) orientation were obtained by the thermal annealing at 300 oC for 1 h. Prolonged heat treatment improved Si crystallite quality and increased the average grain size.

Primary authors: Ms KESRISOM, Kanyarat (Department of Physics, Faculty of Science, Kasetsart University, Bangkok, Thailand, 10900); Dr CHIANGGA, Surssak (Department of Physics, Faculty of Science, Kasetsart University, Bangkok, Thailand, 10900)

Presenter: Ms KESRISOM, Kanyarat (Department of Physics, Faculty of Science, Kasetsart University, Bangkok, Thailand, 10900)

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