

## ABSTRACT.

Aluminium induced crystallization (AIC) was used to crystallize sputtered amorphous silicon thin films on aluminium-coated glass at annealing temperatures ranging from 250-520°C in vacuum. Crystalline volume fractions were measured by Raman spectrometry as a function of annealing temperature. It was shown that the crystallized films had large grains as the Raman peaks were centred at about 520  $\text{cm}^{-1}$  at and over annealing temperatures of 420°C. The three-layer sample crystallization resulted in crystallization of the films at lower temperatures compared to the two-layer sample crystallizations which implied a reduction in the cost of production of the seedlayer and resulting products. Hall mobilities and hole densities ranging from 17.0-22.8  $\text{cm}^2\text{V}^{-1}\text{s}^{-1}$  and  $(4.7-9.2) \times 10^{18} \text{ cm}^{-3}$  respectively were measured. Low hole charge densities for films of the same thickness were achieved at high annealing temperatures which was an indication of less aluminium in seed layers prepared at those temperatures. Having seed layers with sufficiently low hole charge densities is desirable for application of the seed layer in photovoltaic applications.