

Microstructure and Crystal Orientation of Poly-Si crystallized by SLS & ELA

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The microstructure and crystal orientation of poly-Si obtained by Sequential Lateral Solidification (SLS) has been studied. Sample prepared by Excimer Laser Annealing(ELA), also has been investigated, for the comparison. Various SLS techniques have been used in this experiment, such as 2-shot and 3-shot. The grain size of the samples strongly depended on the mask dimension used for SLS. The Electron BackScatter Diffraction (EBSD) technique was used for the orientation measurement. The preferred crystal orientation appeared according to the lateral growth direction. (100) and (110) plane have been strongly developed, perpendicular to the growth direction. The low angle and (111) twin boundaries were often detected by EBSD. The preferred orientation and special boundaries are discussed considering the growth velocity and grain boundary energy.