

**Metal-assisted grown Si films and semiconducting nanowires for solar cells**김준동<sup>†</sup>한국기계연구원  
(joonkim@kimm.re.kr<sup>†</sup>)

The solar energy conversion will take 10 % global energy need by 2033. A thin film type solar cell has been considered as one of the promising candidates for a large area applicable solar cell fabrication at a low cost. The metal-assisted growth of microcrystalline Si (mc-Si) films has been reported for a quality Si film synthesis at a low temperature. It discusses the spontaneous growth of a Si film above a metal-layer for a thin film solar cell.

Quite recently, a substantial demand of nanomaterials has been addressed for cost-effective solar cells. The nanostructure provides a large photoactive surface at a fixed volume, which is an advantage in the effective use of solar power. But the promising of nanostructure active solar cell has not been much fulfilled due mainly to the difficulty in architecture of nanostructures. We present here the Si nanowire (SiNW)-embedded Schottky solar cell. Multiple SiNWs were connected to two different metals to form a Schottky or an ohmic contact according to the metal work function values. It discusses the scheme of rectifying contact between metals and SiNWs and the SiNW-embedded Schottky solar cell performances.

**Keywords:** Thin film, nanowires, Schottky, Solar cells