Catalytic Growth of In_2O_3 Nanoneedles by Vapor Transport

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Abstract- In this work, indium oxide (In_2O_3) nanoneedles have been successfully synthesized by thermal evaporation of indium (III) oxide powders with the assistance of Au catalysts on the silicon substrate at the temperature of 1000°C. The formation of In_2O_3 nanoneedles follows a catalyst-assistant vapor-liquid-solid growth mechanism. Structural analysis revealed that the In_2O_3 nanoneedles are single crystalline. The products were characterized by means of scanning electron microscopy (SEM) and X-ray diffraction (XRD).

Keywords: Thermal evaporation, vapor transport, In_2O_3 nanoneedles.

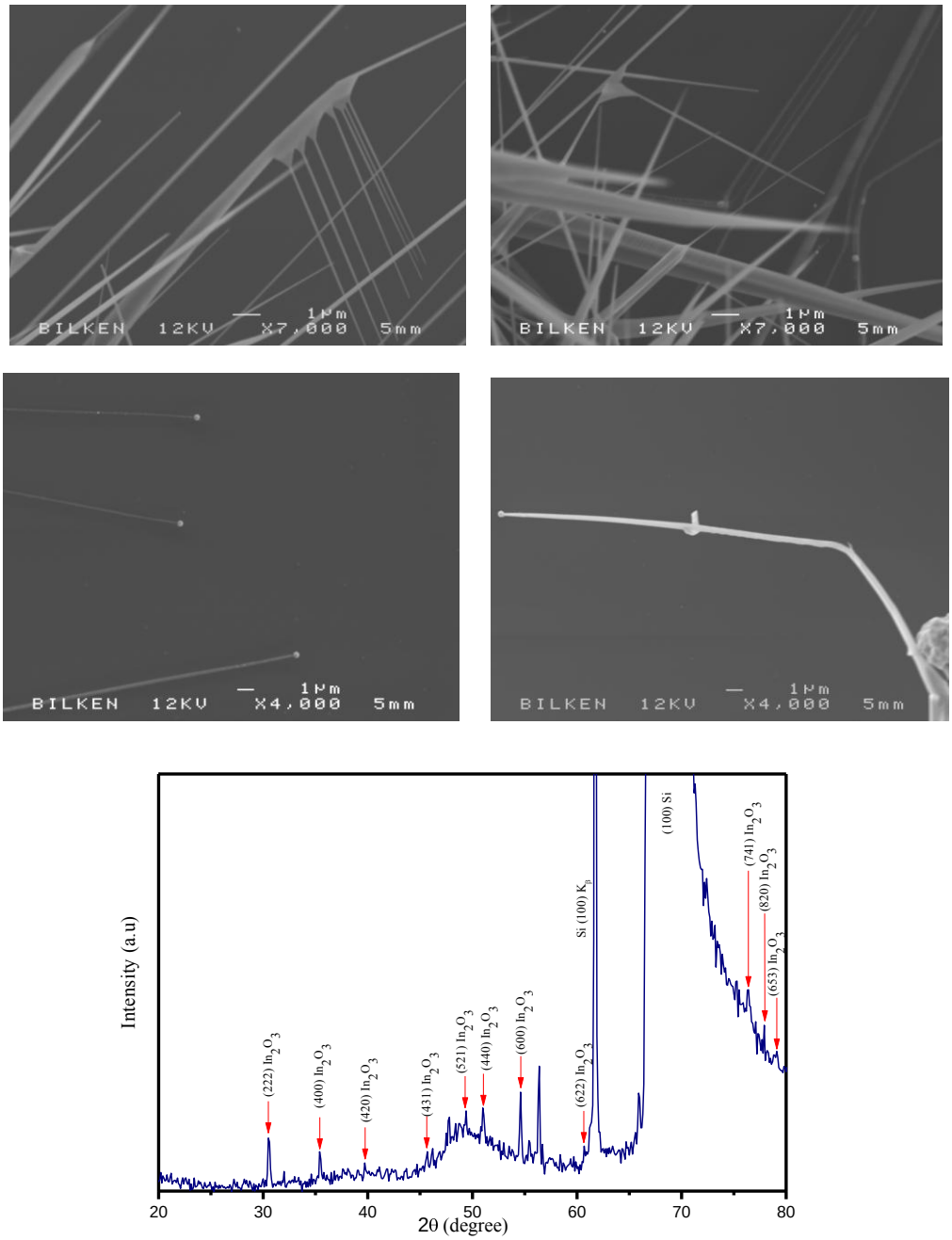


Fig. SEM image and XRD pattern of In2O3 nanoneedles