Title:	Influence of synthesis and calcination temperatures on particle size and ethanol sensing behaviour of chemically synthesized SnO2 nanostructures
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Abstract:	Nanoparticles of SnO2 have been synthesized through chemical route at 5, 25 and 50 °C. In this work the synthesized particles were calcined at 400, 600 and 800 °C and their structural and morphological analysis was carried out using X-ray diffraction and transmission electron microscopy. The reaction temperature has been found to be playing a critical role in controlling nanostructure sizes as well as agglomeration. It has been observed that particles synthesized at 5 and 50 °C were smaller and less agglomerated as compared to the particles prepared at 25 °C. The study also reveals that particle size and agglomeration increases with increase in calcination temperature. Thick film gas sensors were fabricated using synthesized tin dioxide powder, and sensing response of all the sensors to ethanol vapours was investigated at different temperatures. The investigations reveal that sensing response of SnO2 nanoparticles is size dependent and smaller particles are highly sensitive.
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