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Type: **Poster Presentation**

Low temperature synthesis and characterization of ZnO nanoparticles using Polyvinylpyrrolidone (PVP)

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ZnO and PVP capped ZnO nanoparticles were synthesised using the sol-gel method at low temperature with ethanol as a solvent, zinc acetate as a precursor and methanol as the cleaning agent. The influence of temperature on the morphology, structure and the optical properties of the ZnO nanoparticles were investigated. The effect of addition different molar masses of the PVP during the synthesis on the ZnO emission peaks was systematically monitored. Polyvinyl pyrrolidone (PVP) is utilized to cap ZnO nanorods from a zinc acetate precursor at low temperature, since the PVP can be easily removed by burning the solid products. The photoluminescence (PL) characterization of the ZnO nanostructures exhibited a broad emission in the visible range with maximum peaks at 449 and/or 530nm, this was influenced by the addition of different molar masses of the PVP. The scanning electron microscopy (SEM) images of ZnO and PVP capped ZnO has showed the presence of the agglomerated ZnO particles which could be due to the agglomeration of the smaller particles. The x-ray diffraction (XRD) spectra for ZnO nanoparticles show the entire peaks corresponding to the various planes of wurtzite ZnO, indicating a single phase. The absorption edges of these ZnO nanoparticles are shifted by additions of PVP polymer. The absorption spectra of the ZnO showed slight shifts with reference to the various molar masses of PVP.

**Level (Hons, MSc,
 PhD, other)?**

MSc

**Consider for a student
 award (Yes / No)?**

Yes

**Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?**

Yes

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