

## **142ae Electroless Deposition of Transparent Conducting $Zn_2SnO_4$ for Solar Cell Applications**

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Photovoltaic conversion of solar energy appears to be a most promising venue for meeting the increasing energy demands of the future in a time when conventional sources of energy are being depleted. The transparent conducting oxide film acts as the important window layer in the solar cell structure. Transparent Conducting Oxides in the phase space  $SnO_2$ - $ZnO$ , such as  $n$ - $Zn_2SnO_4$  are promising candidates as new  $n$ -TCOs. However, research progress on these materials unfortunately has been stalled due to unsatisfactory electrical and optical properties. We are exploring how to fabricate the new window layer material,  $Zn_2SnO_4$ , using potentially cost effective electroless deposition from aqueous solution. The pretreatment of substrate is crucial in the growth. The correlations between the film electrical, optical and structural properties and growth conditions are investigated.