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Optimization of Zn₂SnO₄ thin film by post oxidation of thermally evaporated alternate Sn and Zn metallic multi-layers

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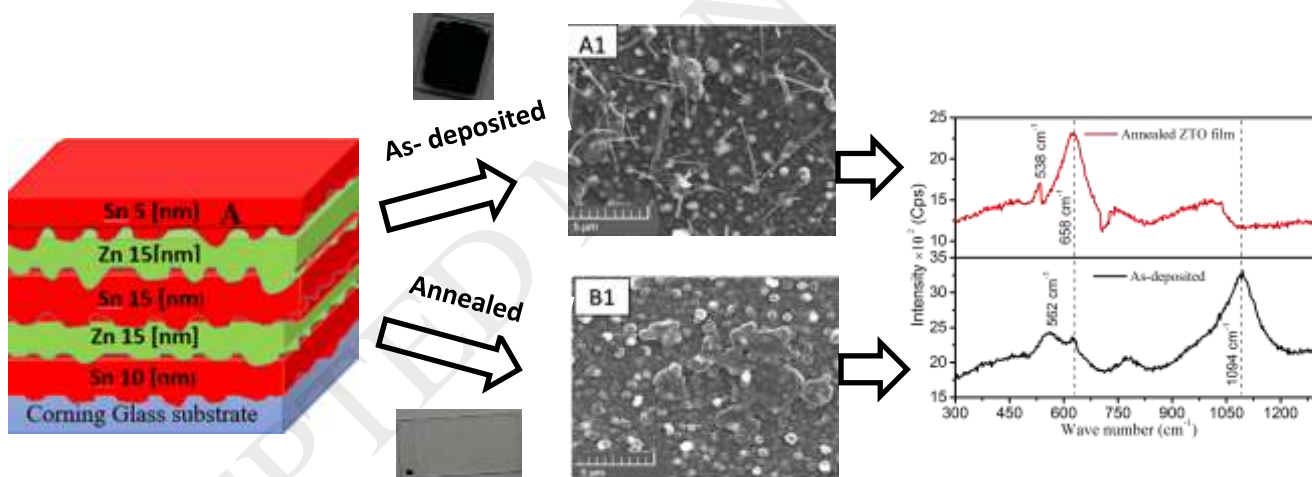
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Graphical abstract



Research Highlights

Metallic Sn and Zn were deposited by a newer alternate evaporation in Sn10/Zn15/Sn15/Zn15/Sn5 sequence.

Upon annealing, metallic multi-layers gets intermixed and oxidized leading to Zn₂SnO₄ phase.

Transparency in visible region was around 40 % with 3.46 eV direct band gap value.

The PL emission has a broad asymmetric peak in blue region due to free-to-bound recombination.

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