

REVIEWER'S REPORT

Manuscript No.: IJAR-58003

Title: ZINC OXIDE (ZnO) THIN FILMS SYNTHESIZED VIA COMBINED SPIN COATING AND CHEMICAL BATH DEPOSITION METHODS: THE INFLUENCE OF PRECURSOR CONCENTRATION ON THE PHYSICAL PROPERTIES.

Recommendation:

Accept as it is ☐☐☐☐☐

Accept after minor revision ☒☐☐☐☐

Accept after major revision ☐☐☐☐☐

Do not accept (*Reasons below*) ☐☐☐

Rating	Excel.	Good	Fair	Poor
Originality		√		
Techn. Quality			√	
Clarity		√		
Significance		√		

Reviewer ID: JP085

Reviewer's Comment for Publication.

This study investigates the synthesis of ZnO thin films using a combined spin-coating and chemical bath deposition (CBD) technique. The effect of precursor concentration (0.05–0.30 M) on the structural and optical properties of ZnO thin films was analyzed using XRD, UV-Visible spectroscopy, and photoluminescence (PL) spectroscopy. The results showed that increasing precursor concentration improved crystallinity and preferential orientation along the (002) plane. All films exhibited high transparency (>80%), band gap values between 3.18–3.25 eV, and defect-related blue emissions. The study identified 0.25 M precursor concentration as the optimum condition for achieving high crystallinity, good transparency, and low defect density.

Strength:

1. Well-defined objective focused on optimizing ZnO thin film properties.
2. Uses a cost-effective and reproducible synthesis approach
3. Comprehensive characterization using XRD, UV-Vis, and PL techniques.
4. Systematic investigation of precursor concentration effects.
5. Detailed structural analysis including crystallite size, strain, texture coefficient, and dislocation density.
6. Results are supported by comparisons with published literature.
7. Practical relevance for optoelectronic devices, sensors, and solar cells.

Weakness:

1. Morphological characterization is missing.
2. Electrical properties (conductivity, resistivity, Hall measurements) were not investigated.
3. Study limited to a single annealing temperature (400°C).
4. No thickness measurements of thin films reported.

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5. Statistical analysis and reproducibility data are lacking.
6. Several grammatical, formatting, and typographical errors throughout the manuscript.

Overall assessment:

This manuscript presents a systematic and scientifically sound investigation of ZnO thin films synthesized through combined spin coating and chemical bath deposition methods. The study contributes valuable information to the field of semiconductor thin-film fabrication and optoelectronic materials. However, inclusion of morphological and electrical characterization would further strengthen the work and improve its overall impact.

Recommendation: Manuscript accepted for publication after minor revision.