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Technical University of Moldova,
Department of Microelectronics and Biomedical Engineering

THE DEPOSITION PROCESS OF ZnO FILMS DOPED WITH Eu AND FUNCTIONALIZED

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Scopul:

Quick process to obtain Eu-doped ZnO films for sensorial applications with low operating temperature, selectivity to hydrogen gas and high response.



Soluție:

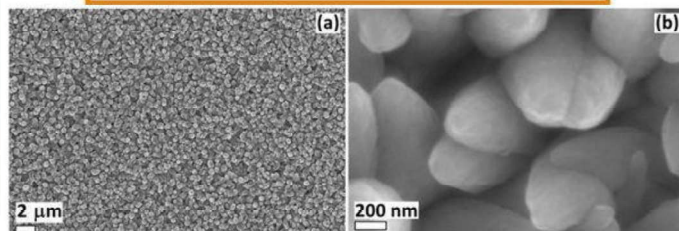
1. Doping with Eu of ZnO by adding EuCl_3 using chemical synthesis from solution method.
2. Rapid thermal annealing ($T=650^\circ\text{C}$, $t=60\text{s}$) to improve film properties of ZnO:Eu .

Avantaje:

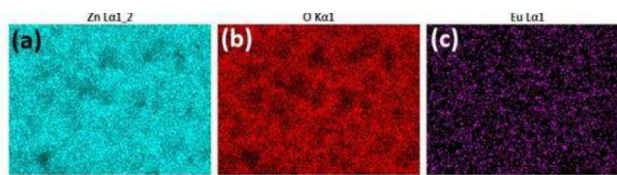
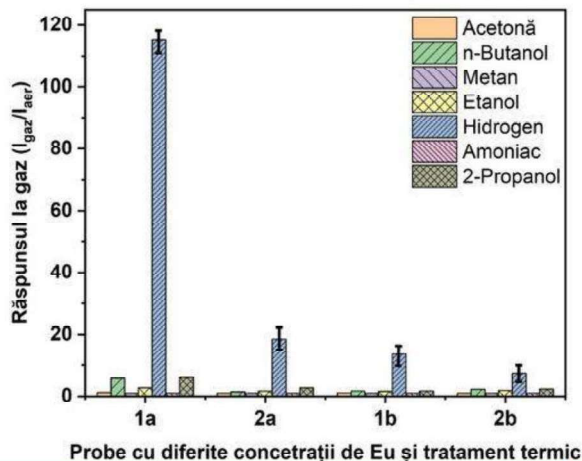
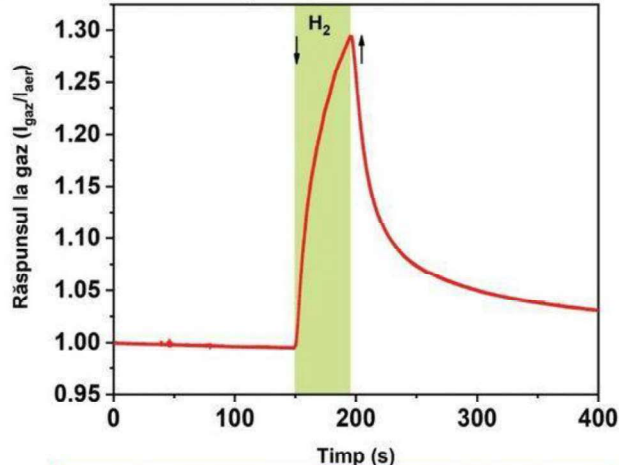
1. Easy to produce using chemical synthesis from solution method.
2. Selective ZnO:Eu films to hydrogen at all operating temperatures.
3. Gas response at room temperature.
4. High gas response $S = I_{\text{gas}}/I_{\text{air}} = 118$ at operating temperature 250°C .

Stadiul:

Implemented at laboratory level

SEM images of ZnO:Eu films

EDX mapping of Zn, O and Eu

 H_2 100 ppm $T = 20^\circ\text{C}$ Gas response of ZnO:Eu films at 250°C Dynamic response at 20°C