MATERIALS ENGINEERING

SEMINAR

"Morphology Variation in ZnO-Metal and ZnO-Oxide Nanocomposite Films"

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Purdue MSE Preliminary Exam

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ABSTRACT

Zinc oxide (ZnO) has been used for centuries in things such as ointments and watercolor pigment. More recently, it has been used in textiles, tires and medicine. Along with its many applications in our daily lives, starting in 2001, ZnO has been researched extensively through the lens of nanostructures and nanocomposites due to its unique properties. This presentation reviews ZnO-based 2-phase morphologies, specifically particle in matrix(PIM) and vertically aligned nanocomposites(VAN) to demonstrate what has been done in the field and what differentiates the 2 morphologies. Specifically, the ZnO-Au and the ZnO-LSMO systems will be discussed since they have shown both PIM and VAN growth. Therefore, comparing the ZnO-metal and ZnO-ceramic nanocomposite films with the same composition but different morphology gives an insight into studies involving factors including strain, morphology tuning, and substrate selection for example. In the end, a critical review on the remaining challenges and research needed in the field is presented and followed by the preliminary research in the area.

Date: Friday, December 9, 2022
Time: 2:00pm
Place: ARMS 1028 or via WebEx https://purdue.webex.com/meet/hwang00

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