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Residual stress in zinc oxide thin films deposited by atomic layer deposition DAVID ELAM, RAMAKRISHNA KOTHA, ARTURO AYON, ANDREY CHABANOV, University of Texas San Antonio — The residual stress in a thin film can have an impact on the electrical and optical properties of the film. In addition, stress is an important consideration when incorporating the material into a microelectromechanical (MEMS) device as large unexpected stresses can cause such a device to fail. The residual stress in ZnO thin films prepared by atomic layer deposition was measured using a radius of curvature technique. The results show relatively low residual stresses on the order of $\sim$0.1 GPa. The stress is observed to change from tensile to compressive as a function of increasing deposition temperature. The polycrystalline structures of the films are also investigated using XRD techniques.

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