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Enhancement of the UV Photoluminescence and Defect Issues in ZnO films DINESH THAPA, JESSE HUSO, HUI CHE, AMRAH CANUL, University of Idaho, JOHN MORRISON, Lewis-Clark State College, CALEB COROLEWSKI, M.D. MCCLUSKEY, Washington State University, LEAH BERGMAN, University of Idaho — ZnO is an environmentally-friendly material capable of emitting light in the Ultraviolet region of ~ 3.4 eV with a potentially wide range of applications such as in solar cells, oil sensors and UV diodes for water purification. In view of realizing these applicative uses, an enhanced UV photoluminescence (PL) of ZnO is desirable. This study presents a route to enhance UV-PL via annealing and examines the origin of the resulting enhanced UV-PL. Native defects and morphological structural defects are discussed. We acknowledge the US Department of Energy, Office of Basic Energy Science, Division of Materials Science and Engineering under Grant No. DE-FG02-07ER46386.

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