

Abstract Submitted  
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**Fabrication of zinc oxide microstructures and their properties<sup>1</sup>**

LATHA KUMARI, WENZHI LI, Florida International University, CHARLES H. VANNON, ROGER M. LEBLANC, University of Miami, DEZHI WANG, Boston College, DEPARTMENT OF PHYSICS, FLORIDA INTERNATIONAL UNIVERSITY, MIAMI, FL 33199, USA TEAM, DEPARTMENT OF CHEMISTRY, UNIVERSITY OF MIAMI, CORAL GABLES, FL 33124, USA COLLABORATION, DEPARTMENT OF PHYSICS, BOSTON COLLEGE, CHESTNUT HILL, MA 02467, USA COLLABORATION — The bitter-melon-like and prism-like zinc oxide (ZnO) microstructures have been synthesized by hydrothermal route. Besides these microstructures, the ZnO material also consists of spherical nanoparticles with narrow size distribution. The as-synthesized ZnO material depicts hexagonal crystal structure. An optical band gap of 2.95 eV is determined from the UV-vis absorption band edge. The prism-like ZnO microstructure shows an ultraviolet near-band-edge emission at about 3.27 eV (380 nm) at room temperature which can be assigned to the radiative annihilation of excitons. The wide-band gap oxide materials like ZnO with short-wavelength PL emission can find application in light emitting devices.

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