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Fabrication and characterization of vertically aligned and interconnected nickel oxide Nanowalls[1] LATHA KUMARI, WENZHI LI, Florida International University, CHARLES H. VANNOY, 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 — Vertically aligned and well interconnected NiO nanowalls were fabricated on Ni foil by a two step hydrothermal route. The as-prepared nickel hydroxide was converted to NiO by further heat treatment. The NiO nanowalls are typically 15 nm thick and around 1-1.5 μm wide. The NiO nanowalls have cubic crystal structure with their growth plane along the [111] direction. The NiO nanowalls show an optical band gap of about 3.8 eV and exhibit broad photoluminescence emission band centered at around 390 nm. The present synthesis technique supports the growth of well aligned 2D nanostructures with large surface area for possible applications in nanoscale devices.

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