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In this work, we investigate the influence of doping on the mechanical properties of ZnO nanowires (NWs) by comparing the mechanical properties of pure and Co-doped ZnO NWs grown in similar conditions and having the same crystallographic orientation [0001]. The mechanical characterization included three-point bending tests made with atomic force microscopy and cantilever beam bending tests performed inside scanning electron microscopy. It was found that the Young's modulus of ZnO NWs containing 5% of Co was approximately a third lower than that of the pure ZnO NWs. Bending strength values were comparable for both materials and in both cases were close to theoretical strength indicating high quality of NWs. Dependence of mechanical properties on NW diameter was found for both doped and undoped ZnO NWs.

Keywords: Cobalt; Doping; ZnO; Nanowires; Mechanical characterization

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