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Guided acoustic modes and elastic moduli of ZnO nanorods

Elastic and stiffness moduli of vertically aligned single-crystal ZnO nanorods grown on Si(001) substrates were determined quantitatively by the surface Brillouin scattering technique. A longitudinal guided mode at 16 – 18 GHz enabled the exact determination of c_{11} from which c_{11} and c_{44} were measured to be 116 GPa and 42.4 GPa respectively, at room temperature.

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