Supplemental to: Piezo- and flexoelectricity arising from extreme strain gradients in bent GaAs nanowires

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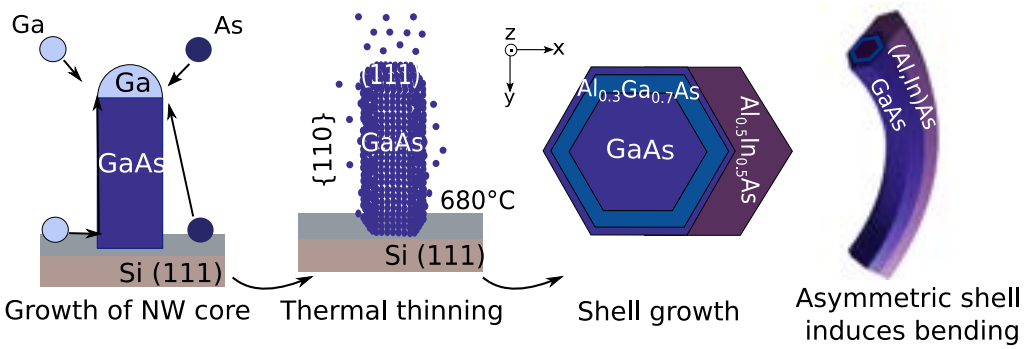


Fig. 1: Schematic illustrating the growth of bent GaAs nanowires (NWs). NWs are grown under Ga droplets, their diameter is thinned by thermal evaporation, and a lattice-matched symmetric (Al,Ga)As shell is grown for surface passivation. Last, a lattice-mismatched (Al,In)As stressor shell is grown and induces bending by strain partitioning.

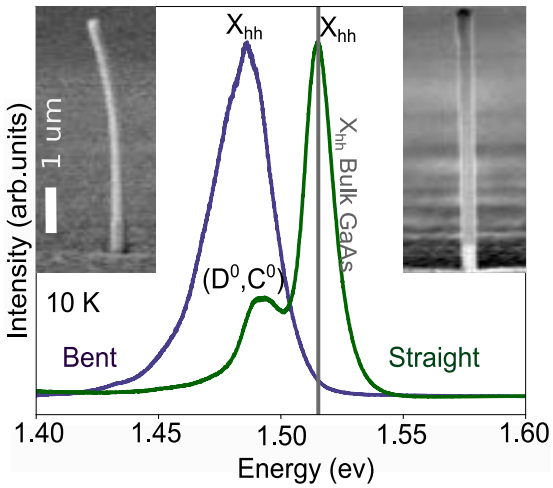


Fig. 2: Low-temperature photoluminescence (PL) spectra for single straight and bent GaAs NWs with low degree of polytypism. Only the donor-acceptor pair (D^0,C^0) and the free exciton X_{hh} transition are observed. The insets are side-view micrographs of the corresponding NWs.

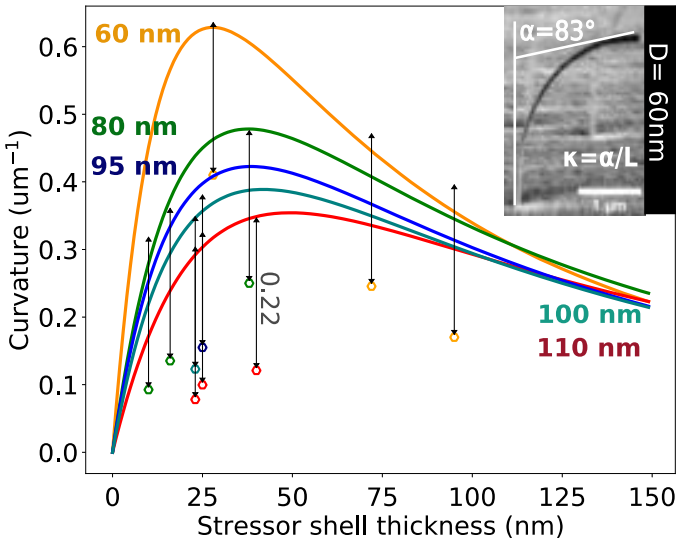
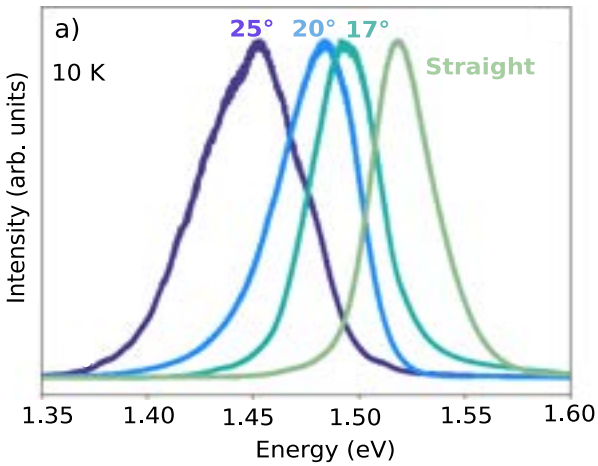


Fig. 3: NW curvature as a function of stressor shell thickness. The curves correspond to elastic strain calculations for different diameters. Data points represent experimental values, and the double arrows indicate a constant offset from the model.



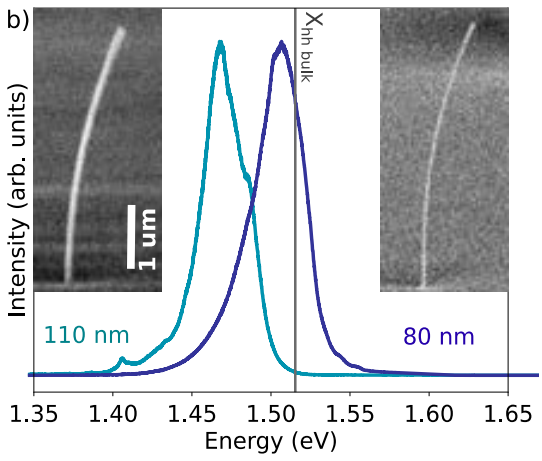


Fig. 4: Low-temperature PL spectra of single bent GaAs NWs. a) Same diameter, different curvature, as indicated by the bending angles. b) Similar curvature, different diameter as given by labels. The insets are side-view micrographs of the corresponding NWs.