

# **Confinement and surface effects on the piezoelectric properties of ZnO and AlN nanowires.**

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We investigate the confinement and surface effects on the piezoelectric properties of ZnO and AlN nanowires. In particular, the piezoelectric constant  $e_{33}$  of these nanowires is computed using the Berry phase method and density functional theory in the LDA approximation. When nanowires are not passivated, the piezoelectric constant is enhanced, while it is reduced when H pseudo atoms are added. We will discuss the effect of the piezoelectric field on the optical properties of these nanowires.