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Size-dependent photoelastic effect in ZnO nanorods[1] HAN YU SHIH, YANG FANG CHEN, National Taiwan University, SEMICONDUCTOR LABORATORY TEAM — Manipulation of internal strain by an external light beam called photoelastic effect has been firmly established in ZnO nanorods. The underlying mechanism of this interesting phenomenon arises from the combination of the screening of internal electric field and converse piezoelectric effect. We demonstrate that the photoelastic effect is more pronounced in thinner nanorods due to a larger surface to volume ratio. In addition to giving a good evidence for the existence of photoelastic effect in semiconductor nanorods, our finding also provides an excellent possibility for the development of nanoscale optical modulators.

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