

# Supporting Information

for

## Substrate and Mg doping effects in GaAs nanowires

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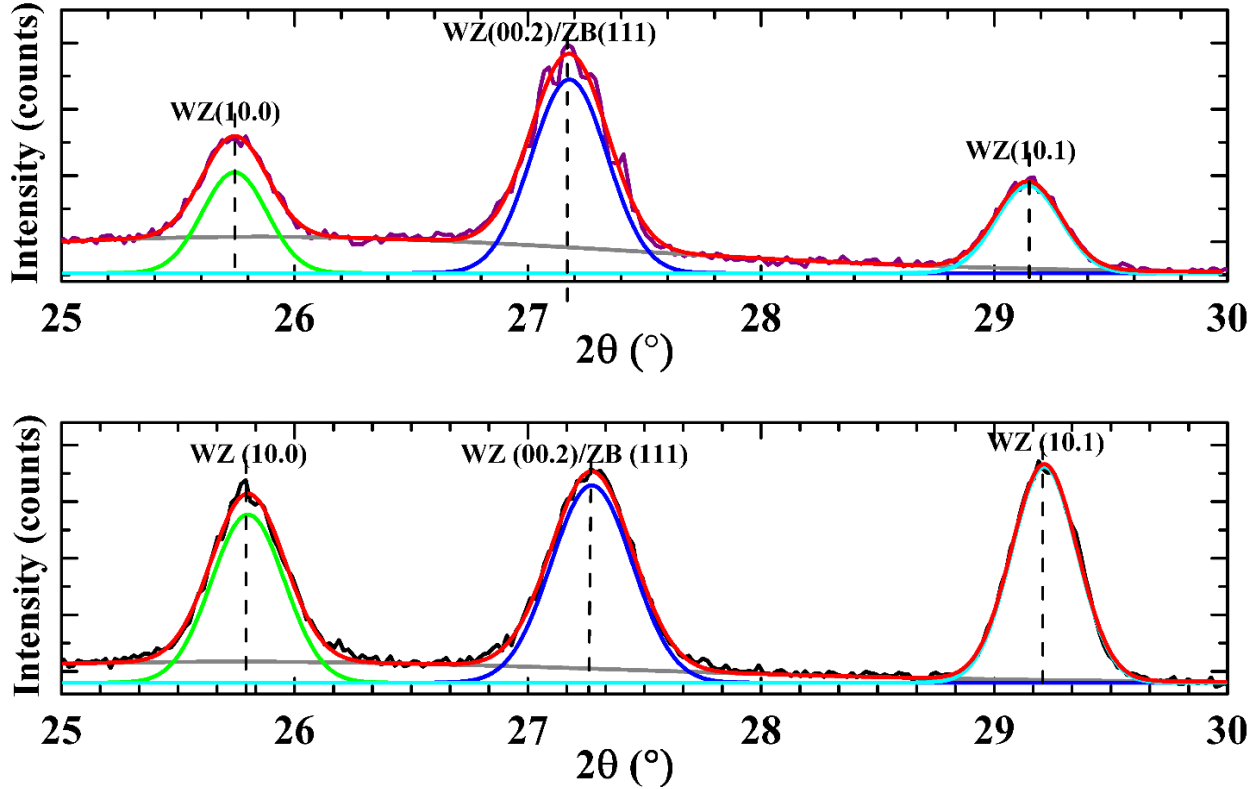
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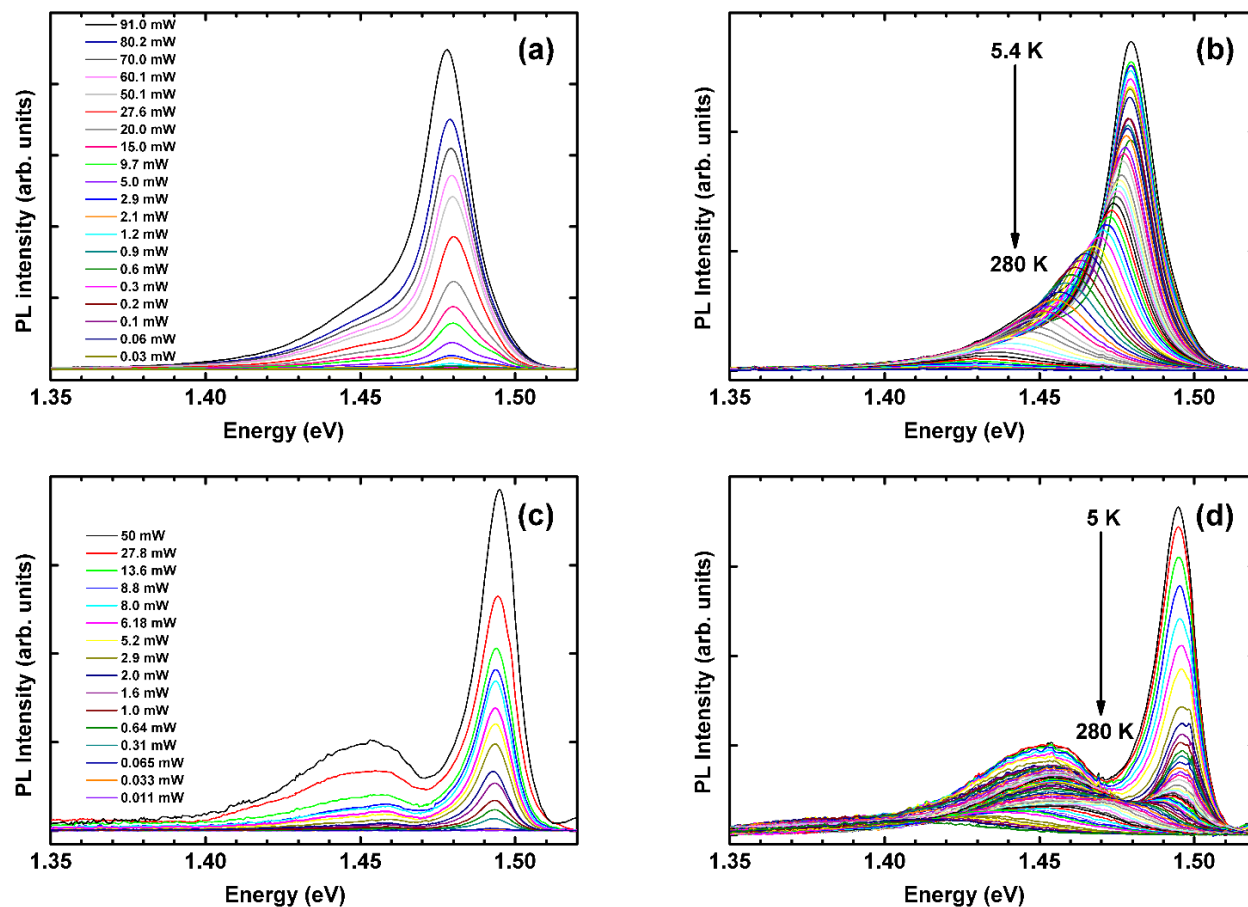
**Fitting model used in the evaluation of the relative intensities of the reflection peaks obtained in grazing incidence X-ray diffraction and all PL spectra measured in the excitation power and temperature dependencies for samples A and B.**

Figure S1 illustrates the fitting model used in the evaluation of the relative intensities of the reflection peaks obtained in grazing incidence X-ray diffraction.



**Figure S1:** Grazing incidence X-ray diffraction diffractograms ( $\omega/2\theta$ ) measured with an incidence angle of  $\omega = 2$ , for (a) sample A and (b) sample B. The fitting model with Gaussian components to the observed reflection peaks is illustrated.

All PL spectra measured in the excitation power and temperature dependencies for both samples A and B are shown in Figure S2. The excitation power dependencies of both samples were performed at 5 K (Figure S2 (a) and (c)). The temperature dependencies for samples A and B were performed under excitation powers of 80 and 50 mW, respectively for Figure S2 (b) and (d).



**Figure S2:** PL spectra measured in the excitation power and temperature dependencies for (a), (b) sample A; (c), (d) sample B. In (a) and (c) the temperature of the sample was 5 K. In (b) and (d) the excitation power was 80 and 50 mW, respectively.