

Supplementary Information

Highly linear polarized emission at telecom bands in InAs/InP quantum dot-nanowires by geometry tailoring

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S1: Distribution of the long and short nanowire axes

The dispersion of the long and short axis lengths for the different samples (A, B and C) have been investigated. The obtained results are presented in Fig S1. We have measured the long and short axes of the top NW cross-section for 24 different NWs for each sample. The average values of the long and short axes are summarized in Table S1. The obtained results in Fig. S1 show that NW short axis cross-section length is in the range of 100-200 nm for samples A and B and 150-250 nm for sample C. The NW long axis cross-section is in the 200-300 nm range for sample A, 250-350 nm range for sample B and 420-550 nm range for sample C. This dispersion in the NW long/short axes length for each sample could be, most likely, due to the shadowing effect i.e. a NW is shadowed by its neighbor NWs.

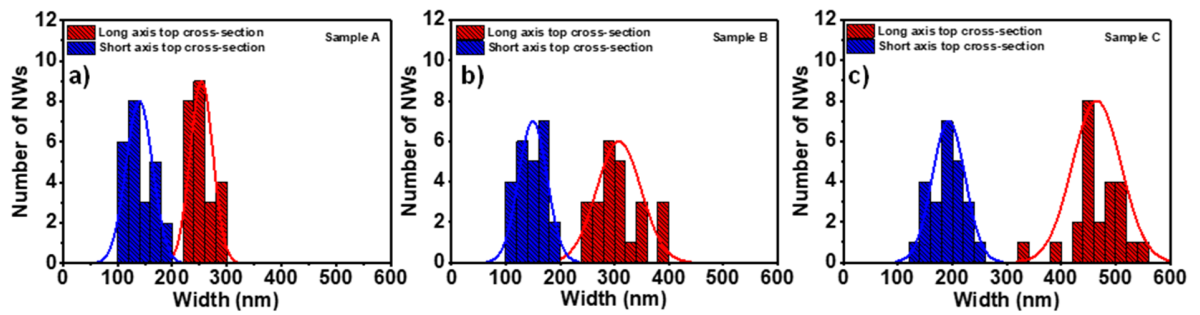


Fig S1 - (a-c) Distribution histograms showing the dispersion in the long/short axis top cross-sections for samples A, B and C respectively.

Table S1 – Summary of the average long/short axis top cross-sections of samples A, B and C obtained from the histograms of Fig S1.

	Long axis cross-section (nm)	Short axis cross-section (nm)
Sample A	254 ± 21	140 ± 24
Sample B	308 ± 41	150 ± 26
Sample C	465 ± 45	193 ± 30

S2: Theoretical DLP as a function of the short and long axes

The DLP has been investigated as a function of the length of the short and long axes for the three samples. The method described in the paragraph “FDTD Simulations” of the article is used for these calculations. Moreover, we have calculated the intensity of the QD emission collected by our experimental setup. The QD emission intensity is the sum of the QD emission for both dipole orientations (parallel and perpendicular to the long axis) used to calculate the DLP. The results are shown in Fig S2.

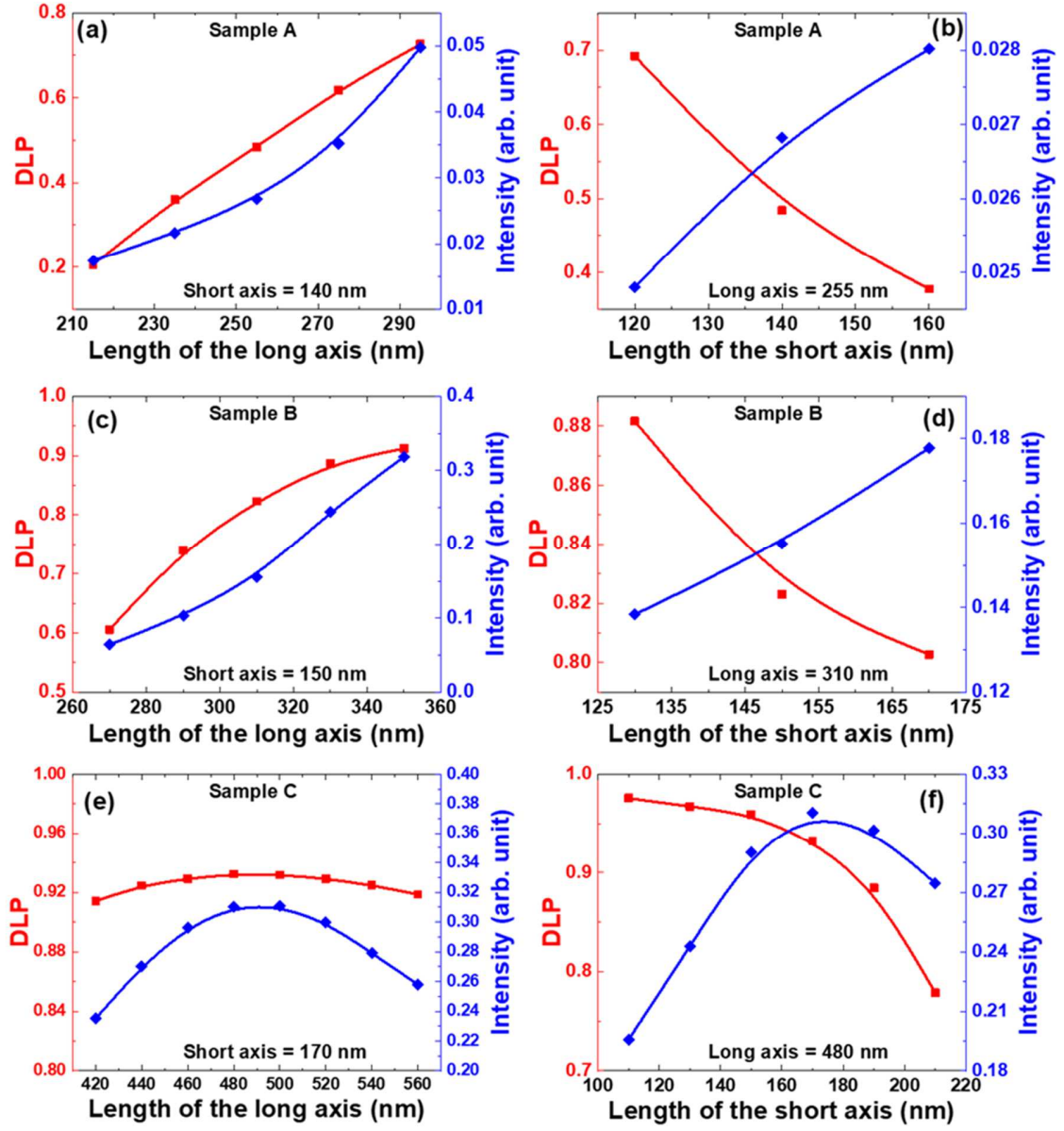


Fig S2 : DLP and QD emission intensity as a function of the length of the long axis (a, c, e) and short axis (b, d, f) for samples A (a, b), B (c, d) and C (e, f). The DLP (QD emission intensity) is shown in red (blue). The lines are guides to the eye.