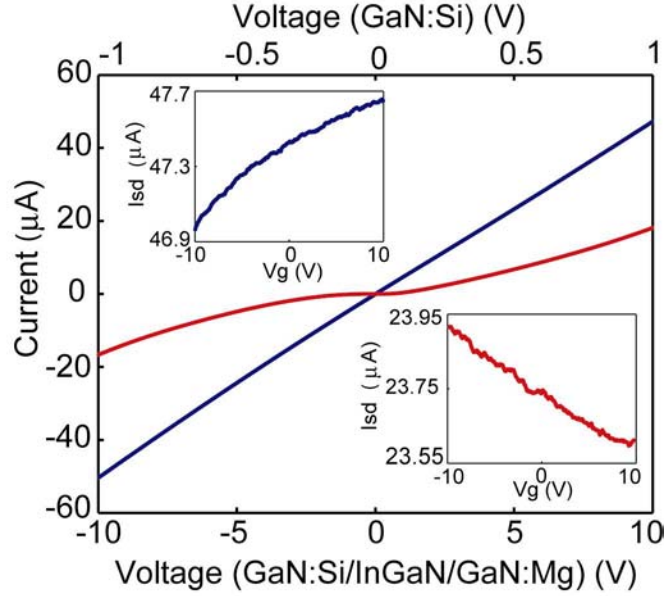


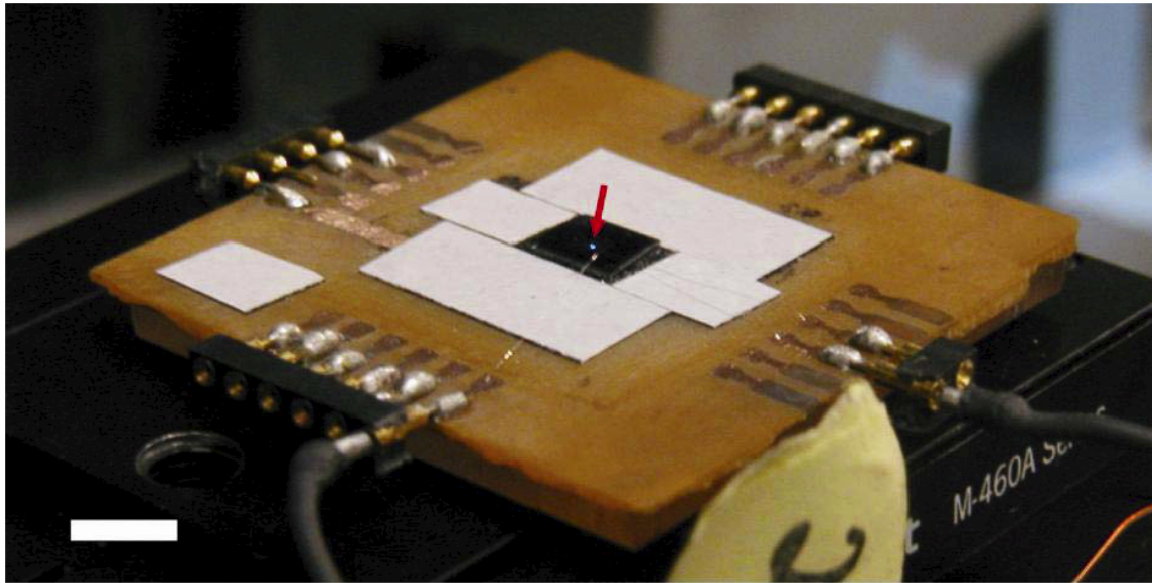
**FIGURE S1.** Triangular faceting of GaN/InGaN CS nanowires. (a)-(f) Bright-field TEM micrographs of a single GaN/InGaN CS nanowire obtained using different TEM stage tilt angles (indicated on the images). Scale bar, 50 nm. The same nanowire, orientated as in (d), was used for the EDX elemental line profile shown in Figure 3b). Electron diffraction pattern (inset, (a)) demonstrated that the nanowire was orientated along the [0001] zone axis. Schematic insets (blue) are models of the orientation of the triangular cross section nanowire for different tilt angles.



**FIGURE S2.** Electrical characterization of a core nanowire and the outer shell of a CSS nanowire. Current vs. voltage data recorded for the n-GaN nanowire (blue) and the outer shell of n-GaN/InGaN/p-GaN CSS nanowire (red). Insets show the corresponding source-drain current ( $I_{sd}$ ) as a function of gate voltage ( $V_g$ ), where the source drain voltage for the core and shell measurements were 1 and 10 V, respectively. The mobilities calculated from these data<sup>1</sup> were 13.6 and 0.3 cm<sup>2</sup>/Vs for the n-type GaN core and p-type GaN shell, respectively.

#### Reference

- (1) Wind, S. J.; Appenzeller, J.; Martel, R.; Derycke, V.; Avouris, P. *Appl. Phys. Lett.* **2002**, 80, 3817-3819.



**FIGURE S3.** Digital photograph of high brightness CSS nanowire device in forward bias. Image of a standard device chip on a homemade carrier used for the electroluminescence measurements. Red arrow indicates strong blue emission generated from a single n-GaN/InGaN/p-GaN CSS nanowire device in a forward bias (5 V). Scale bar, 1 cm.