Fabrication of Metal-Semiconductor Nanowire Heterojunctions

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Figure Captions

Fig. 1 SEM image of a product.

Fig. 2 a) TEM image of a Si subnanowire growing along the [331] direction, the inset is corresponding SAED pattern in accordance with the Si [110] zone axis. b) High-resolution TEM image of the Si subnanowire ($d_{(111)} = 3.13 \text{Å}$, as indicated by

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double-lines), the inset is the scheme of diamond-like Si crystal structure viewed along the [110] direction.

**Fig. 3** a) TEM image of a Si subnanowire growing along the [111] direction. b) SAED pattern taken from the Si subnanowires, that corresponds to the Si [110] zone axis. Streaking of the reflections on the underfocused ED pattern (the right-hand-side images) implies the preferential growth direction close to the [111] orientation. c) High-resolution TEM image of the Si subnanowire ($d_{[111]} = 3.13\text{Å}$, as indicated by double lines), and its corresponding structural model (inset).

**Fig. 4** a) A plot of the equilibrium vapor pressure of metallic In ($P_{\text{In}}$, Pa) versus temperature ($T$, K). b) A plot of the standard free energy ($\Delta G^0$, $2SiO(g) \rightarrow Si(s) + SiO_2(s)$, KJ/mol) versus temperature ($T$, K).
Fig. 1
Fig. 2
Fig. 3
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Fig. 4

2SiO(g) → Si(s) + SiO₂(s)