Supporting Information for

$InAs_xSb_{1-x}$ Alloy Nanocrystals for Use in the Near Infrared

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Materials: Indium acetate ($In(Ac)_3$, 99.99%), and selenium shot (Se, 99.999%) were purchased from Alfa Aesar. Tri-*n*-octylphosphine (97%). Octadecene(90%) was purchased from Aldrich. Oleic acid (99%) was purchased from TCI. Tris(trimethylsilyl)arsine and antimony was synthesized as followed.

$As(TMS)_3$: Sodium (2.9g, 126.8 mmol) and potassium metal (4.1g, 104.8 mmol) were heated until the metals melted to form alloy. Arsenic powder (5g, 66.74 mmol) were added to the schlenk flask followed by the addition of DME (80 ml). The schlenk flask sealed inside the glove box and taken out, the flask was heated at 80℃ for 48 hrs with stirring. The reaction mixture was then cooled to 0^0 C and added trimethyl sillyl chloride (29.7g, 273.6 mmol) slowly under nitrogen atmosphere. Slowly raised the temperature to room temperature and heated at 50℃ for 24 hrs with stirring. The reaction mixture was cooled to room temperature and filtered over celite. The volatiles removed under vacuum and the product was obtained as colorless oil by vacuum distillation. The product was confirmed by NMR spectroscopy.

$Sb(TMS)_3$: This compound was prepared by the same procedure and as that of As(TMS)3, using antimony lumps

Fabrication of Alloyed $InAs_xSb_{1-x}$ Quantum Dots: To make $InAs_{0.97}Sb_{0.03}$, 0.029 g (0.10 mmol) of indium acetate and 0.085 mg (0.30 mmol) of oleic acid were added to 8 ml of octadecene and degassed at 120□ for 1hr. The solution was purged with nitrogen, and then heated to 300□ under nitrogen. 0.013 g (0.045 mmol) of $(TMS)_3As$ and 0.002 g(0.005 mmol) of $(TMS)_3Sb$ were dissolved in 2 ml of octadecene in a glovebox, and injected into the hot reaction flask. After injection, the temperature was dropped to 270□ which was maintained for 0.5 hr. The solution was cooled to room temperature and the dots were then precipitated with an excess of ethanol. The same procedure is used to prepare $InAs_{0.90}Sb_{0.10}$ and $InAs_{0.86}Sb_{0.14}$ dots, except that 0.013 g(0.033 mmol) of $(TMS)_3As$ and 0.006 g(0.016 mmol) of $(TMS)_3Sb$ were used for the $InAs_{0.90}Sb_{0.10}$ dots, and 0.008 g(0.025 mmol) of $(TMS)_3As$ and 0.009 g(0.025 mmol) of $(TMS)_3Sb$ were used for the $InAs_{0.86}Sb_{0.14}$ dots.

TEM Image of $InAs_{0.97}Sb_{0.03}$ (d_{ave}= 2.50nm, σ= 0.35 nm)).