

## MBE-Grown $\text{In}_x\text{Ga}_{1-x}\text{As}$ Nanowires with 50% Composition

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In a particular case of Au-catalyzed  $\text{In}_x\text{Ga}_{1-x}\text{As}$  nanowires, wide compositional tuning has been obtained using metal organic vapor-phase epitaxy, which remains difficult for molecular beam epitaxy.  $\text{In}_x\text{Ga}_{1-x}\text{As}$  nanowires are demonstrated with  $x = 0.5$ , grown by Au-catalyzed molecular beam epitaxy via the vapor–solid–solid mode at a low temperature of 220°C. Low-temperature growth suppresses re-evaporation of indium and gallium atoms and their surface diffusion, which is why the composition of ternary nanowires is precisely determined by the indium content in vapor. This method can be used for compositional tuning of other ternary III–V and III–N nanowires grown by molecular beam epitaxy.

**Keywords:** InGaAs nanowires, composition, miscibility gap, molecular beam epitaxy.

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