

### **319e Selective Growth of Si Nanowire Arrays Via Galvanic Displacement Processes in Water-in-Oil Microemulsions**

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Galvanic displacement processes are employed in water-in-oil microemulsions to deposit gold nanoclusters selectively on Si surfaces and sidewalls. The gold clusters then serve as catalysts to achieve selective growth of vertically and laterally aligned Si nanowire arrays by chemical vapor deposition via the vapor-liquid-solid growth mechanism. The size of the gold clusters is shown to have a good correlation with the microemulsion parameters, which in turn controls the size of the synthesized nanowires.