

Abstract Submitted  
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**Electrodeposition of Metal on GaAs Nanowires**<sup>1</sup> CHAO LIU, OMID EINABAD, SIMON WATKINS, KAREN KAVANAGH — Copper (Cu) electrical contacts to freestanding gallium arsenide (GaAs) nanowires have been fabricated via electrodeposition. The nanowires are zincblende (111) oriented grown epitaxially on n-type Si-doped GaAs (111)B substrates by gold-catalyzed Vapor Liquid Solid (VLS) growth in a metal organic vapour phase epitaxy (MOVPE) reactor. The epitaxial electrodeposition process, based on previous work with bulk GaAs substrates, consists of a substrate oxide pre-etch in dilute ammonium-hydroxide carried out prior to galvanostatic electrodeposition in a pure Cu sulphate aqueous electrolyte at 20-60°C. For GaAs nanowires, we find that Cu or Fe has a preference for growth on the gold catalyst avoiding the sidewalls. After removing gold, both metals still prefer to grow only on top of the nanowire, which has the largest potential field.

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