

Abstract Submitted
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Gold and Gallium Nanoparticle Growth on Silicon (100) GARETT MILTON, SAMUEL TOBLER, Dixie State University — Nanoparticles are used for various applications in today's research. Some researcher's interests involve using the nanoparticles to grow silicon nanowires on a silicon substrate. Before growing nanowires can be accomplished a study must be made of the formation of nanoparticles. Most often the metal used to make the nanoparticles is gold. In this study both gold and gallium were used to make the nanoparticles, by thermal evaporation. The gold and gallium nanoparticles were grown on silicon (100). Between one to three monolayers of material was added to the substrate, with the particle sizes ranging from $0.5 \mu\text{m}$ to $3 \mu\text{m}$ in diameter. Densities of nanoparticles varied based on the time of growth and on the intensity of the source. The variable sizes were seen with sample temperatures between $700 \text{ }^\circ\text{C}$ and $900 \text{ }^\circ\text{C}$ measured using a disappearing filament optical pyrometer. The growth process occurred at pressures below 3×10^{-7} Torr. This presentation will summarize the growth process and show the similarities and differences between the two metals.

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