

Abstract Submitted  
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**Single-Electron Transistors made by chemical patterning of silicon dioxide substrates and selective deposition of gold nanoparticles**  
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THOM LABEAN, Chemistry Department, Duke University, GLEB FINKELSTEIN, Physics Department Duke University — We describe a method to pattern SiO<sub>2</sub> surfaces with colloidal gold nanoparticles by e-beam lithography and selective nanoparticle deposition. The method allows us to deposit nanoparticles in different shapes, including long continuous lines just one nanoparticle wide. We contact the pre-positioned nanoparticles with metal leads to form Single Electron Transistors. The Coulomb blockade pattern surprisingly does not show the parasitic “offset charges” at low temperatures, indicating relatively little surface contamination.

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