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Electrolyte gating of gold point contacts TREVOR PETACH, MENYOUNG LEE, DAVID GOLDHABER-GORDON, Stanford University — Gold point contacts are fabricated in-situ by electromigration in an ionic liquid bath. These contacts are shown to be stable at room temperature at conductances as small as $50 G_0$. By electrolyte gating the contacts using a counter electrode in the ionic liquid, conductance changes of 25% are observed, corresponding to accumulation of more than one electron per gold surface atom. Double step chronocoulometry and x-ray reflectometry suggest that ion ordering in the ionic liquid near the gold interface are consistent with the observed changes in conductance.

Trevor Petach
Stanford University

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