

Abstract Submitted
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Gold Nanogap Junctions Fabricated by Temperature-Controlled Electromigration G. ESEN, M.S. FUHRER, Department of Physics and Center for Superconductivity Research, University of Maryland, College Park, MD — Electromigration of gold nanowires of different cross-sectional areas are studied using a feedback-controlled electromigration algorithm. We have observed a linear correlation between the cross sectional area of the gold nanowire and the power dissipated in the junction during electromigration, indicating that the feedback mechanism primarily controls the junction temperature. We also show that the role of external feedback circuit is to prevent thermal runaway; minimization of series resistance allows control of electromigration with a simple voltage ramp. We also discuss the I-V characteristics of the junctions after they are formed.

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