

Abstract Submitted
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Electrolyte Gating of YBCO Josephson Junctions¹ SAM STANWYCK, Department of Applied Physics, Stanford University, Stanford, CA, 94305, ETHAN CHO, Univ of California - San Diego, SHANE CYBART, Univ of California - Riverside, ROBERT DYNES, Univ of California - San Diego, DAVID GOLDHABER-GORDON, Stanford University — We report low-temperature transport measurements of electrolyte-gated Josephson junctions in thin films of $\text{YBa}_2\text{Cu}_3\text{O}_{7-d}$. The junctions are formed using ion damage from a 0.5 nm focused He-ion beam, allowing for junction barriers down to a few nm in length. The barrier can be tuned continuously from a reduced T_C superconductor to a normal metal to an insulator by varying the ion dose. We use an ionic liquid electrolyte combined with a thin protective layer of hexagonal Boron Nitride to reversibly modify the junction properties.

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