

**ELECTRONIC ELASTICITY AND SWITCHING IN ATOMIC-SIZE
CONTACTS**

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We demonstrate completely reversible mechanical manipulations of the electronic state of the smallest niobium point contacts. This ubiquitous "elastic" regime includes switching between two distinct configurations, which occurs via random telegraph noise. We present detailed Landauer-type description of these configurations derived from transport measurements in the superconducting state. Accompanying first-principles simulations reveals the atomic structures that underlie the conductance properties of these junctions.