

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Losses in Josephson junction resonators MARTIN WEIDES, National Institute for Standards and Technology, Boulder, JIANGSONG GAO, JEFFREY KLINE, MICHAEL VISSERS, DAVID WISBEY, DAVID PAPPAS — Josephson junctions for superconducting circuits such as SQUIDs and qubits are conventionally based on Al-AlO_x-Al multilayer technology, which was shown to have a low quality factor and two-level-fluctuators in the dielectric AlO_x as limiting decoherence source. By replacing the amorphous Al-rich tunnel oxide with nearly stoichiometric Al₂O₃ we aim to increase the qubit coherence times by reducing the number of dangling bonds in the Josephson tunnel junction. In this talk a test platform for loss determination in high-Q tunnel oxides based on junction resonators will be presented. We will show alternative tunnel junctions based on high temperature grown tunnel oxides.

Martin Weides
National Institute for Standards and Technology, Boulder

Date submitted: 27 Nov 2010

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