

Abstract Submitted
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Superconducting high kinetic inductance resonators made from granular aluminum¹ L. GRUENHAUPT, S. T. SKACEL, N. MALEEVA, Z. WANG, A. V. USTINOV, H. ROTZINGER, I. M. POP, Physikalisches Institut, Karlsruhe Institute of Technology, 76131 Karlsruhe, Germany — We present experimental results on superconducting thin film resonators fabricated from granular aluminum. By employing an electron beam evaporation process that allows an in-situ integration with Josephson junctions, we fabricated high kinetic inductance resonators with the goal of measuring their internal dissipation and non-linearity. Our results are in agreement with a theoretically predicted kinetic inductance in the range of 1 nH per square. Measurements in the single photon regime show internal quality factors in excess of 10^5 and self-Kerr coefficients in the range of 10 – 100 Hz per photon.

The obtained results are promising for applications in high characteristic impedance superconducting circuits for quantum information processing as well as for kinetic inductance detectors.

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