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Fabrication and characterization of highly disordered TiN thin films by reactive evaporation for circuit-QED. YEN-HSIANG LIN, RAYMOND MENCIA, BAOLONG NGUYEN, VLADIMIR MANUCHARYAN, University of Maryland - College Park — Titanium nitride (TiN) has been identified as one of the potentially new materials for circuit-QED. In particular, disordered TiN films close to superconductor-insulator transition can be beneficial to greatly enhance kinetic inductance due to low superfluid density. Here we report TiN thin films prepared by e-beam evaporation within a nitrogen rich environment. By controlling nitrogen gas flow rate, the normal sheet resistance of TiN film can be tuned higher than 1kOhms while superconductivity still remains above 2K. Here, we present our characterization results and microwave measurement of quality factor Q and kinetic inductance L.

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