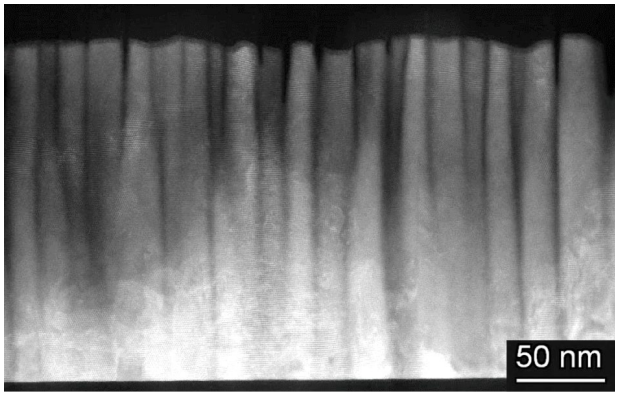
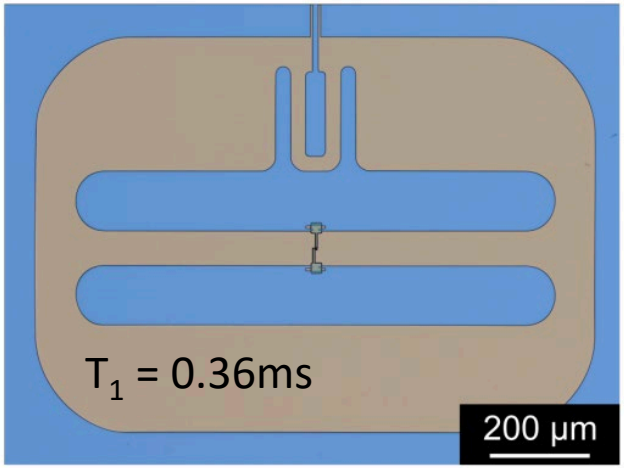
Materials Research Science and Engineering Centers

New Material Platform for Superconducting Transmon Qubits with Coherence Times Exceeding 0.3 Milliseconds (IRG-3)

IRG-3 researchers have discovered that the lifetime of a quantum state in superconducting transmon qubits can consistently exceed 0.3ms when fabricated with alpha-phase tantalum.





A. P. M. Place[1], L. V. H. Rodgers[1], P. Mundada[1], B. M. Smitham[1], M. Fitzpatrick[1], Z. Leng[2], A. Premkumar[1], J. Bryon[1], S. Sussman[2], G. Cheng[3], T. Madhavan[1], H. K. Babla[1], B. Jäck[2], A. Gyenis[1], N. **Yao**[3], R. J. **Cava**[4], N. P. **de Leon**[1], and A. **A. Houck**[1] (in preprint arxiv:2003.00024).

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This work was supported by the Army Research Office (HIPS W911NF1910016), the National Science Foundation (MRSEC DMR-1420541 and RAISE DMR-1839199), and the Air Force Office of Scientific Research (FA9550-18-1-0334)