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Superconducting parameters of aluminum-lithium alloys M.N. OU, Academia Sinica and National Chiao Tung Univ., Taiwan, B.J. CHEN, Y.Y. CHEN, Academia Sinica, Taiwan, J.C. HO, Wichita State Univ. — Superconducting transition temperatures T_c near 1 K of single-phase fcc aluminum-lithium alloys, with 0 to 10 at.% Li, have been determined through ac susceptibility data. Earlier calorimetric measurements above 2 K on the same samples yielded the Debye temperature θ_D and the density of states at Fermi level N(0) from the lattice specific heat coefficient and the electronic specific heat coefficient, respectively. Following the modified BCS expression, $T_c = 0.85\theta_D \exp[-1/N(0)V]$, such experimentally derived T_c, $\theta_D$and N(0) values for each sample provide a measure of the electron-phonon interaction parameter V, which plays central roles in inducing the traditional superconductivity. Its value increases monotonically from 0.611 to 0.710 eV for 0 to 10 at.% Li.

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