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The Ca and Yb Isotope Effect in Superconducting Ca and YbC₆¹ DAVID HINKS, DAN ROSENMANN, HELMUT CLAUS, Argonne National Laboratory — The isotope effect ($\alpha = -\partial \log T_c/\partial \log M$ where M is the isotope mass and T_c is the transition temperature) is a measure of the phonon contribution to the superconductivity. We have measured both the Ca and the Yb isotope effect in intercalated highly orientated pyrolytic graphic (HOPG) by vapor phase transport of the isotopes. We find a large and, within the experimental error, equal α for each element, 0.36(4) and 0.40(4) for Yb and Ca, respectively. The value for Ca is larger then theoretically predicted indicating a stronger electron-phonon coupling.

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