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Thermal Conductivity and Wiedemann-Franz Ratio for Zinc Crystals

C. A. Cinnamon
State University of Iowa

resistivities previously found in this Laboratory. A slight difference in purity of two lots of zinc which is, however, sufficient to cause a difference in resistivity of about one per cent, does not change this ratio. Further work is being done on the effect of strain on the resistivities of mosaic crystals.

DEPARTMENT OF PHYSICS,
STATE UNIVERSITY OF IOWA,
IOWA CITY, IOWA.

THERMAL CONDUCTIVITY AND WIEDEMANN-FRANZ RATIO FOR ZINC CRYSTALS

C. A. CINNAMON

The measured thermal conductivities of large bars (30 cm. × 1.2 cm²) of single crystal zinc obey the Voigt-Thomson symmetry relation. The ratio of the conductivities perpendicular and parallel to the axis is 1.057. Since this agrees with the ratio of the similar electrical conductivities the Wiedemann-Franz ratio is the same for all directions in the crystal. This ratio agrees within 10 per cent with the value predicted by the Sommerfeld theory.

DEPARTMENT OF PHYSICS,
STATE UNIVERSITY OF IOWA,
IOWA CITY, IOWA.

THE DEPENDENCE OF CYBOTACTIC GROUPS ON SPECIFIC VOLUME

ROSS D. SPANGLER

Additional x-ray diffraction data have been taken on ethyl ether in the region of the critical point. (Spangler, Abstract 24, Phys. Rev. 42, p 907, 1932) Series of diffraction curves at pressures of 39.2, 44.1, 49, and 55 kg/cm with temperatures ranging up to 235°C show, as in previous work, that the cybotactic groupings depend more on specific volume than on temperature. At each of the above pressures, the indications of groups disappear at about the critical specific volume regardless of the higher temperatures at higher pressures. The ionization currents were measured with a direct deflection amplifier employing an FP-54 tube instead of the customary electrometer. With this arrangement data could be