The Structure of the Fluorite-Related Phase $Ca_2Hf_7O_{16}$. H. J. Rossell and H. G. Scott. CSIRO Division of Tribophysics, University Grounds, Parkville, Victoria, 3052, Australia. The atomic arrangement in the fluorite-related phase, $Ca_2Hf_7O_{16}$, has been determined by powder X-ray diffraction. The unit cell is rhombohedral, $R\bar{3}$, with $a = 9.5273$ Å, $\alpha = 38.801°$, and $Z = 1$, and its volume is $2\frac{1}{4}$ times that of the fluorite subcell from which it is derived. The cations are ordered on the cation sites of the fluorite structure with the calcium ions segregated into discrete layers parallel to the (111) fluorite plane: there is some evidence that the formal anion vacancies are also ordered.

The Defect Structure of CdTe: Hall Data. S. S. Chern, H. R. Vydyanath, and F. A. Kröger. Department of Materials Science, University of Southern California, University Park, Los Angeles, California 90007. A high-temperature Hall effect study as function of cadmium pressure and temperature was carried out for pure and indium-doped CdTe. The results, combined with published data on the Hall effect of quenched crystals and electronic energy level positions, are interpreted on the basis of a detailed point defect model. Parameters of the equilibrium constants of various defect formation reactions are given.

Sur le Système $BaFeO_{3-x}$-Bi_2O_3. M. Zanne, C. Gleitzer, and J. Aubry. Laboratoire de Chimie du Solide, C.N.R.S. No. 158, Université de Nancy I, 54037 Nancy Cedex, France. Investigations, in this system, are limited to the region $0 < (Bi/Ba) < 0.7$. The oxygen pressure is applied up to 200 bar. The phase diagram results from chemical analysis and X-ray diffraction. A perovskite phase is formed with a composition $(Ba_{1-y}Bi_y)_A(Fe_{1-y}Bi_y)_BO_{3-x}$. The change of electrical and magnetic properties depends chiefly on the average oxidation number. The dielectric constant is rather high, but with an important angle loss.

Decomposition of Co_2TiO_4 *Spinel below 1000 K.* M. Inagaki and S. Naka. Faculty of Engineering, Nagoya University, Furo-Cho, Chikusa-ku, Nagoya 464, Japan. Co_2TiO_4 spinel was found to decompose to the mixture of $CoTiO_3$ ilmenite and Co_3O_4 spinel below 1000 K. The decomposition rate was the larger for the sample ground for the longer period. It showed a maximum around 870–920 K which appears to come from the balance between the rate increase by diffusion and the decrease of nucleation probability with temperature. The thermodynamical consideration supported the experimental results.

Preparation, Propriétés Cristallographiques, Magnétiques et Electriques de la Solution Solide $Ca_{2-x}Y_xMnO_4$. C. Chaumont, A. Daoudi, G. Le Flem, and P. Hagenmuller. Laboratoire de Chimie du Solide du C.N.R.S., Université de Bordeaux I, 351 Cours de la Liberation, 33405 Talence, France. The solid solution $Ca_{2-x}Y_xMnO_4$ $(0 \leqslant x \leqslant 0.30)$ is isostructural with Ca_2MnO_4. Magnetic properties can be interpreted by Goodenough's superexchange theory. Electrical properties characterize a hopping mechanism.