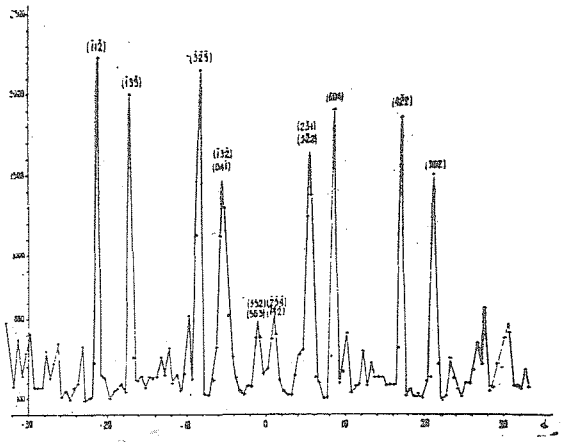
Table.

Molecular structure	Hydrogen bonds A...A1	Hydrogen bonds H...A1	Hydrogen bonds ∠AHA1	Structure model
I	N...N=2.821, C...N=3.300,	H...N=1.83Å, H...N=2.48Å,	∠NHN=160°, ∠CHN=147°	Chain along a
II	N...N=2.896, N...N=3.080, N...N=3.136,	H...N=2.04Å, H...N=2.27Å, H...N=2.25Å,	∠NHN=171°, ∠NHN=151°, ∠NHN=161°	Chain along [101]
III	N...N=2.947, N...N=2.992, N...N=3.101, N...N=3.145,	H...N=2.12Å, H...N=2.11Å, H...N=2.29Å, H...N=2.36Å,	∠NHN=161°, ∠NHN=168°, ∠NHN=146°, ∠NHN=151°	Chain arround 2_1
IV	No data			
V	N...O=2.650, O...O=3.060,	H...O=1.74Å, H...O=2.23Å,	∠NHO=174°, ∠OHO=155°	Corrugated sheets
VI	N...N=2.922,	H...N=1,96Å,	∠NHN=179°	Chain arround 2_1



Multiple X-ray scattering in $FeBO_3$. MoK . Refl.(111).

24.1-07 MULTIPLE X-RAY SCATTERING BY RHOMBOHEDRAL CRYSTALS. N.N.Faleyev, V.G.Labushkin. Gosstandart, Moscow, USSR.

The multiple X-ray scattering (Renninger's effect (Renninger M., Zeit. Kryst. 113, 99, 1960) was observed in ferrous hematite and borate crystals. X-ray scattering was studied in the direction of forbidden reflections (111), (333), and (555). The evidence for multiple scattering was provided by periodic occurence of peaks in the process of crystal rotation about the diffraction vector $\vec{\tau}$. In accordance with the symmetry of the reciprocal lattice of the crystals studied the peaks recur every 60°; besides, they are symmetrical relative to the zero mark.

The ratios of the peak intensities to the permitted reflection intensity amount to 1×10^{-4}–2×10^{-3}. Thus, the effect observed in crystals of rhombohedral symmetry should be taken into account when the nuclear levels are studied in the crystals of this kind by means of synchrotron radiation, as well as in solving other related physical problems.

24.1-08 X-RAY STUDIES OF MAGNETIC STRUCTURE OF ANTIFERROMAGNETIC NiO AND MnO CRYSTALS. N.N.Faleyev, A.A.Lomov, V.G.Labushkin

The angular distribution of CuKα & MoKα X-rays scattering by NiO & MnO crystals in the direction of superstructural magnetic reflections (1/2 1/2 1/2) & (3/2 3/2 3/2) was studied at $T < T_N$ & $T > T_N$ (where T_N is the phase transition temperature). When the CuKα radiation was scattered by NiO crystals, the reflections caused by the magnetic structure of the crystal were observed. The intensity of the reflection (3/2 3/2 3/2) exceeded substantially (about 10 times) both the theoretical predictions (Plazman & Tzoar, Phys.Rev. (1970), B2, 3556) & experimental data (Bergevin & Brunel, (1972), 39A, 141, Phys. Lett). With MnO crystals & MoKα radiation the magnetic structure did not manifest itself in X-ray scattering measurements although the incoherent background level was several times lower then the expected intensity of "magnetic" reflections. The results obtained allow the X-ray technique to be used in magnetic structure studies of crystals. Still greater possibilities lie in the employment of synchrotron radiation.