22.2 INVESTIGATION OF THE STRUCTURE OF CONCENTRATED AQUEOUS SOLUTIONS OF INDIUM NITRATE. M. Isabel Cabaço and M. Alves Marques, Centro de Física da Matéria Condensada (INIC Instituto de Física e Matemática, Av. Prof. Gama Pinto, 2 1699 Lisboa Codex (Portugal)

Concentrated aqueous solutions of indium nitrate were investigated by X-ray diffraction. The obtained results are interpreted by assuming the existence of (local) cubic structures of molecular aggregates coordinated by cations. The existence of different types of aggregates (without and with coordinated anions) is discussed and the contributions for the diffracted X-ray intensity from the different shells of complexed cations is examined too.

22.2-2 INVESTIGATION OF THE STRUCTURE OF CONCENTRATED AQUEOUS SOLUTIONS OF ALUMINIUM HALOGENIDES. J.H.S. de Almeida Casimiro, M. Isabel de Barros Marques and M. Alves Marques, Centro de Física da Matéria Condensada (INIC Instituto de Física e Matemática, Av. Prof. Gama Pinto, 2 1699 Lisboa Codex (Portugal)

Concentrated aqueous solutions of aluminium chloride and bromide were investigated by X-ray diffraction. The experimental intensity is interpreted by assuming an uniform (f.c.c.) distribution of molecular aggregates constituted by a central Al$^{3+}$ surrounded by six hydration water molecules. The perturbation of this hydration shell by the neighbour anions, Cl$^-$ or Br$^-$, is analysed, and the assumed hypothesis of a face centered cubic symmetry of the (local) lattice is discussed. Previous investigations (1) are reexamined.


22.2-3 STRUCTURE AND CRYSTALLIZATION OF AMORPHOUS ALLOYS BASED ON FERRUM. By G.S. Zhdanov, E.S. Kamaeva, A.A. Katenelson, N.A. Khatanova, Faculty of Physics, Moscow State University, Moscow, USSR.

The structure of amorphous alloys Fe$_{40}$Ni$_{39}$Mo$_{4}$-$ \text{Pb}$, Fe$_{70}$Ni$_{25}$Cr$_{5}$, Fe$_{30}$Ni$_{30}$Cr$_{30}$ prepared by melt spinning, was studied by means of X-ray technique and electron microscopy. The photon registration of X-rays, scattered by the amorphous specimens, made it possible to obtain apparent inner galo besides galo, common for the amorphous alloys. The inner galo is analogous to the prepeak, obtained by neutron diffraction methods in Cu$_{32}$Zn$_{68}$ alloy (Sakata, Cowles, Davies, J. Phys. F: Metal Phys. (1981) II, L197). The comparison of the intensities of the inner and the first galo showed the correlation between these intensities and the composition of alloys. The fact, that the occurrence of the inner galo is due to the formation of small regions with average atoms' coordination, different from the coordination observed in massive, was obtained by means of dark field electron microscopy and selected area diffraction.

The processes of Fe$_{40}$Ni$_{25}$Mo$_{4}$-$ \text{Pb}$, alloy crystallization from the liquid and amorphous phases were compared. The same metastable phases - (Fe,Ni,Mo)$_{3}$, (Fe,Ni,Mo)$_{2}$, (Fe,Ni,Mo)$_{2}$, were shown to occur in these two cases, but the amounts of these phases are different.