the sample B shows system of parallel dislocations running out to the surface. In the middle of the sample a strong contrast on the topograph due to strains shows that the direction of heat conduction was radial, because of the strong contact of the sample with the wall of the capsule (E.Lendvay et al. J. of Crystal Growth 71, 538-550, 1985). The correlation of the orientations shows the strong interaction between the crystallites. The "space sample" is poorer in defects than the other one. The absence of strain in the middle of the ingot confirm, that the direction of heat conduction was essentially axial during the cooling cycle. The fact that there is no correlation between the orientations of the grains in this sample shows that the interaction between the growing crystallites of the boule was very weak.

07.1-2 INFLUENCE OF MICROGRAVITY ON CRISTALLIZATION FRONT TOPOGRAPHY.

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As a result of some crystal growing experiments from liquid solution in orbital stations, a remarkable difference has been observed in cristallization front microtopography between twin experiments developed both on Earth and under microgravity conditions.

In the particular case of "Zone" experiment performed on board of the orbital complex Saliut 6-Soyuz 37-Soyuz 38 (September, 1980) the sample analysis disclosed increase in height and decrease in anisotropy of the growing steps on (100) surface of sucrose crystalline layers grown by through of Temperature Gradient Zone Melting (TGZM).

Additionally, results are reported when the same method is applied to crystal growing, where samples have different relative orientation of the temperature gradient and the terrestial gravity vector.

In this work the experimental arrangement employed in the spatial and terrestial experiments are described specifying the conditions, under which, the above mentioned experiments were developed (thermal regime, duration, geometric characteristics of samples, etc). There are also explained the microphotographic techniques applied to the study of cristalline layers relief, including some photographs obtained by means of this method.

In order to explain the changes of shape in the growing in microgravity conditions, hydrodynamic behaviour of the system is analysed in both conditions, concluding that according to known convective processes (free and Marangoni's convection, due to concentration gradients or temperature gradients) it is not possible to explain the differences found.

It is also exposed a possible transport mechanism in the solid-liquid fronteer that explains the obtained results.

07.1-3 NUCLEATION POTENCY OF EUTECTIC PHASES.

By V.V. Podolinsky, Yu.N. Taran and V.G. Drykin, Department of Physics, Institute of Construction Engineers, Dnepropetrovsk, USSR.

The solid-solid interface between two eutectic crystals can be analysed as well as the solid-liquid interface. In this case the value of the α factor defines the degree of atomic roughness of the solid-solid interface between two eutectic crystals.

$$\alpha = \xi \frac{\Delta H_A - \Delta H_B}{kT} = \xi \frac{\Delta H_{diss}}{kT}$$

where ξ is the anisotropy factor, ΔH_A is the heat of evaporation for one phase per A-atom, ΔH_B is the same value for the other phase, ΔH_{diss} is the heat of dissolution of A-atom in B-crystal. If the α factor for the solid-solid interface is higher than the critical value 2,5 then the smooth interface between eutectic crystals will have to be less free energy than rough interface. This will have to lead to the non-reciprocal nucleation behavior in the systems in which one phase grows faceted and the other phase grows non-faceted because the nucleation must occur on the faceted crystal to form the solid-solid smooth interface with less free energy. If the α factor for the solid-solid interface is smaller than the critical value then the nucleation must occur on the non-faceted crystal to form the solid-solid rough interface with less free energy.