quantum interference device (SQUID) were carried out with reduced nano-powders. They were kept under inert conditions after preparation. Complementary transmission electron microscope (TEM) studies of the same samples gave insights into the morphological appearance of the metallic phase.
The results confirm the existence of interstitial oxygen. Additionally the formation of an In-Sn-phase (I 4/mmm) was shown, even under weakly reducing conditions. Due to the liquid state of indium and tin at the process-temperature the interfacial tension leads to the formation of In-Sn balls when the phase-proportion becomes bigger. The balls have a size of 100-800 nm and encase the original ITO-nanoparticles. Furthermore particle growth and surface diffusion are increased in reducing atmosphere. The low electrical resistance of a metallic surface state [3] in combination with the removal of interstitial oxygen could explain the drastic increase of conductivity after reduction treatments.

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Paramagnetic centers in quartz of basic industry deposits Yevgeniya Kotova, *Institute of geology, Syktyvkar, Russia.* E-mail: enkotova@geo.komisc.ru

Keywords: mineralogy, spectroscopy, quartz.

Quartz is prevailing mineral species and is strategically important mineral raw materials. However pure differences of quartz suitable for synthesis of monocrystals and glass melting used in optics, electronics and other hi-tech industries are enough rare. Hydrothermal and pegmatite deposits of high-quality quartz are known in Russia, the USA, Brazil, Madagascar, China and some other countries.
One of the major quality parameters of quartz raw material for a glass melting is the contents of structural impurities, which determining a limit of quartz raw material washability. The electron spin resonance (ESR) is an effective method for determination some impurity elements in minerals. The main task of the research is estimation and comparative analysis of the contents of the structural impurity-related paramagnetic centers in basic industrial and potentially industrial quartz types of Urals, Kareliya, Eastern Siberia, the USA, China and some other deposits and areas. This investigation is of interest as for the analysis of minerogenesis conditions as for an estimation of quartz raw materials quality. Researches were made using ESR data on defects connected with isomorphous incorporation of Al- and Ge- ions into the lattice of vein quartz. ESR spectra of Al- and Ge-centres of the powder preparations of quartz were recorded with the radiospectrometer SE/X 2547 (RadioPAN, Poland) at 77 K and 300 K.
The carried out research has shown significant variety of the paramagnetic centers contents in quartz of hydrothermal veins, pegmatites and quartzites. The lowest contents of Al- and Ge-centres are established in the granulated quartz of Subpolar Urals and in quartz from white granites and East Sayan quartzites. It is representing the great interest relative to a problem of high quality quartz raw material for a glass melting.
The increase of average values and of variations ranges of paramagnetic centers concentrations from earlier primarily fine-grained vein quartz generation to later smoky and smoky-citrine quartz generations is stated by the example of Subpolar Urals quartz.
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The Formation of Nano Hydroxyapatite By Using Polymeric Additives Özlem Doğan, Emel Akyol, Umut Uysal, Mualla Öner *Yıldız Technical University, Chemical Engineering Department, Davutpasa 34210 Istanbul, Turkey*
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Keywords: hydroxyapatite, biomineralization, crystallization

The biological synthesis of inorganic solids often yields materials of uniform size, unusual habit, organized texture and defined structure and composition under moderate conditions of supersaturation and temperature. An understanding of biological solid-state interactions would therefore be of immense value in structural biology and medicine (for example, in the pathological mineralization of bones and teeth and formation of kidney stones) in crystal growth, colloidal and solid-state science (as in the prevention of industrial scaling and controlled synthesis of electronic, magnetic and catalytic devices) and in materials and engineering technology (organized composites and ceramic precursors, and the interrelationships between microstructure and mechanical properties). It seems that new chemical synthetic methods can be developed to form materials with highly controlled microstuctures if biomineralization processes can be understood and imitated [1, 2].
Hydroxyapatite (HAP, $Ca_5(PO_4)_3OH$) which is the thermodynamically most stable phase of calcium phosphate is a very important biocompatible material. The controlled nucleation and growth of HAP is essential for the study of hard tissues calcification such as bone and tooth and other undesirable cases of pathological mineralization such as articular cartilage and stones in gall bladder and kidney [3, 4].
In general, biominerals are formed by the precipitation of calcium carbonate, calcium phosphate and other minerals within polymeric tissue matrices. It is thought that the organic polymer matrix is the key to the micro structural control. Acidic proteins can be incorporated into mineralizing tissues and are believed to be responsible for both nucleation and inhibition of crystallization [5].
In this work that we investigate HAP crystallization as a model for biomineralization. The constant-composition method has been used to study the individual effect of polymeric additives for the HAP crystalization. The polyvinylphosphonate, bisphosphonate polymers and carboxymethylinulin green polymers have been used as additives for controlling crystallization.

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