



Spectroscopy of micro phases on the mineral surfaces

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The presence of stable formations on the mineral surfaces, that can be preserved during the geological time and because of it carrying information about the sequence of physical and chemical processes, is proved by the experimental data. The solution of the problem dealing with the degree of adsorbophysical fields influence on the physical and chemical qualities of the natural objects surface phases will show the role of surface hydroxide groups in the process of formation of mineral typomorphism. At the same time it's necessary to take into account the influence of surface formations when solving theoretical and practical problems in micro and nano mineralogy. The complex of mineral analytical methods of research provides great opportunities for getting reliable information about geneses and qualities of micro phases on the mineral surfaces. The given complex should be based on the achievements of the modern analytical methods. There are different types of spectroscopic methods (infrared spectroscopy, Auger-spectroscopy and others) together with electronic microscopy.

As the result of high resolution spectroscopy research the presence of micro and nano phases on the quartz sands surface (river Kozhim, Polar Ural, Kotova, 1993). Other scientists also observed the presence of various stable produced phases (films, quasiphases, etc.) on the mineral surfaces. Namely at our Institute a group of scientists guided by A.B. Makeev discovered metallic films on the natural diamond surface. The exploration of their composition showed intermetallic compound with abnormally high quantity of some components.

Using the new approach, that unites zonal theory with the chemical adsorption treatment in the language of interaction and border orbits diagrams, crystal physical and crystal chemical properties of micro and nano phases on the mineral surfaces were linked together. Researching the influence of adsorbophysical fields on the physical

and chemical characteristics of micro and nano phases on the mineral surfaces aims at defining the role of adsorbed and structured oxygen in the formation of crystal physical and crystal chemical properties.