Muscovite of various deposits and genetic types have particular peculiarities due to the quantitative correlation of cations having variable valency and different ionic radii. The structural isomorphism is accounted for the different thermistoriality of muscovite crystal structures. By phase X-ray it has been determined that after thermal treatment of different muscovite crystals under fixed conditions along with reduced dehydroxylation muscovite certain amount of original phase is remained, that may be considered as an criterion of crystal structure thermorability. The attempt has been made to establish the relation variable valency and on the cationic content by using the method of regression analysis. This equation looks as follows:
\[ C = 0.533 + 0.266 \text{ C}_{14} \]
where \( C \) is the muscovite phase concentration in the heated specimen. \( C_{14} \) coefficient in the chemistry formula of the particular muscovite crystal. \( C_{14} \) coefficient is of most significance compared with that of other cations proving the considerable dependence of the thermorability of crystals on the cationic content of the particular muscovite crystal. This equation may be used for estimating the structural thermorability of muscovite.

Many solids have a whole set of temperature anomalies (\( T_{cr} \)). In this report we discuss a comparatively new approach to the problem of multiplicity of \( T_{cr} \) in a solid: the data on \( T_{cr} \) and various spectroscopic data (including neutron, Raman, Brillouin scattering and other spectra) are firstly analyzed independently and then discussed as a whole on the basis of quantum ideas (Murkowtsev, Solov'ev, Venevtsev, Dokl. Akad. Nauk SSSR 1976(213), 492; Venevtsev, Murkowtsev, Solov'ev, ibid.(1976) 250, 121). Our method includes an empirical stage in which we seek to describe the spectra through transitions between different levels of \( T_{cr} \). The relativistic part of interactions between electrons and nuclei is also taken into account in this report. Analysis of experimental data on SrTiO\(_3\) and solid Sr by this method (Muromtsev, Solov'ev, Venevtsev, Dokl. Akad. Nauk SSSR (1976)213, 492; Venevtsev, Mu­

05. PHYSICAL PROPERTIES AND STRUCTURE

05.1-11 MUSCOWITE STRUCTURAL THERMOSTABILITY AND CATIONIC ISOMORPHISM. By G. I. Kosmachev, G.A.Kunentsova, L.M.Nichalevich, Inkutsk State University, Inkutsk Politechnical Institute, Inkutsk, USSR.

05.1-12 THERMAL EXPANSION IN MeLiSO\(_4\) WHERE He = Rb, NH\(_4\), Cs. By A. Pietraszko, Institute for Low Temperature and Structure Research, Polish Academy of Sciences, Wroclaw, Poland.

05.1-13 SYSTEMS OF CRITICAL TEMPERATURE POINTS AND DISCRETE QUANTUM STATES OF SOLIDS By Yu.N. Venertsey and V.I. Murkowtsev, Karpov Institute of Physical Chemistry, Moscow, USSR