**PHASE TRANSITIONS IN THE GRAPHITE INTERCALATION COMPOUNDS WITH BROMINE**

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Graphite intercalation compounds (GICs) are layered compounds of graphite which are formed by the insertion of mono-atomic or monomolecular layers of same substances between graphite layers. GICs are excellent model compounds for studying the peculiarities of phase transitions in two-dimensional structures.

In presented work the peculiarities of phase transitions in the layers of intercalate for GIC with bromine were investigated with using of Raman spectroscopy and X-Ray diffraction methods.

As it is shown from Figure 1a, in addition to the graphite G-line intercalates lines are observed. With using of temperature dependence of line shape, line width, frequency and intensity of the intercalate bromine molecular stretch mode, the peculiarities of phase transitions in the GIC are analyzed.

Figure 1b presents result of X-Ray diffraction in the plane 00l at the room temperature. As it is seen from Figure, the stage of compound is *S* = 3 and identity period *Ic* = 13.89 nm. Also in presented work the results of X-Ray difraction in *hk0*-plane in wide range of temperature T = 150÷293 K and coefficient of linear thermal expansion in C-axis are presented.

a)b)

Figure 1 – a) Raman spectra for GIC with bromine(2) and source graphite (1) at the room temperature (T=293K); b) X-Ray diffraction in the *00l*-plane at the room temperature.