# ELECTROCONDUCTIVITY AND PRESSURE-TEMPERATURE STATES OF STEP SHOCKED $C_{60}$ FULLERITE.

A.M. Molodets[1], V.V. Avdonin[1], A. N. Zhukov[1], S.N. Sidorov[2], V.V. Kim[1], J.M. Shulga[1],

[1]*Institute of Problems of Chemical Physics of Russian Academy of Science, 142432 Chernogolovka, Russia*

[2]*Institute of Solid State Physics of Russian Academy of Science, 142432 Chernogolovka, Russia*

The complex study of electrophysical and thermodynamic properties of $C_{60}$ single crystals under step shock loading has been done. The increase and following reduction of specific electroconductivity of $C_{60}$ fullerite single crystals at step shock compression up to 30 GPa has been measured. The equations of state for fcc $C_{60}$ fullerite as well as for 2D polymer $C_{60}$ and for 3D polymer $C_{60}$ were constructed. The pressure-temperature states of $C_{60}$ fullerite were calculated at the step shock compression in the region up to 30 GPa and 550 K. X-ray diffraction studies of shock recovered samples have revealed the mixture of fcc $C_{60}$ and x-ray amorphous component of fullerite $C_{60}$. The start of x-ray amorphous component formation is for pressure $\boldsymbol{P}_m \approx 19.8$ GPa and for temperature $\boldsymbol{T}_m \approx 520$ K. At pressure exceeding $\boldsymbol{P}_m$ and temperature pressure exceeding $\boldsymbol{T}_m$ the shock compressed fullerite presents itself two-phase mixture of fcc $C_{60}$ fullerite and x-ray amorphous component presumably composed of the nucleators of polymer $3DC_{60}$ fullerite. The electroconductivity reduction of fullerite can be explained by the percolation effect caused by the change of pressure, size and number of polymeric phase nucleuses.

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