Development of Advanced Superionic Conductors Based on Topological Nanorods Crystals

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Purpose of the project / experiment: The main purpose of the project was to synthesis and then growth of TlGaTe2 crystals. Development of a high capacitance mini capacitor based on nanorods superion crystals; investigations their main electrical, dielectric, polarized and relaxation properties in wide temperature range and various frequencies. Preliminary investigations show that the reason of giant relaxation and sharp increase of dielectric susceptibility is a low dimension of system. So, owing to one-dimensional nanorods structure of TlGaTe2 crystals in superion phase we are going to construct a high capacitance mini capacitor known as advanced superionic conductors. Methods of research: Within the framework of the given project following researches are carry out: - synthesis and growth of single crystals of the TlGaTe2 crystals; The systematic investigated of temperature and frequency dependences of dielectric, polarization and electrophysical properties of the TlGaTe2 crystals carry out. Data/Observations: Synthesis and growth of single crystals of the TlGaTe2 crystals and dielectric characteristics are investigated. As samples for measurements rectangular plates ~ 0,5 mm thickness are used. The platinum (for blocking contacts) and silver contacts have using in the experiments. Conclusions/Applications: A special consideration to the industrial application of scientific and technical results will be conducted in order to make such important task as it is research of the market. The opportunity of use of last results for preparation of other projects will be appreciated, also. At work of this project has already given us intelligently to look on the world market of high-technology productions concerning of superion mini capacitors.

Awards Won: