

Project review

"Development of experimental techniques and applied research on monochromatic positron beams"

Currently, solving a number of applied problems in solid state physics, in particular, surface modification and synthesis of functional materials, predicting the behavior of nuclear materials, etc., requires the use of fine tools and methods for studying the evolution of defects. This problem is successfully solved by positron annihilation spectroscopy (PAS). This type of spectroscopy makes it possible to determine the nature and concentration of point and extended defects in the crystal lattice, to study violations of surface layers and surface states in metals, alloys, semiconductors and other substances. The Joint Institute for nuclear research has been conducting research using these methods for several years. The proposed project is mainly of an applied nature, both from the standpoint of developing elements of accelerator technology and from the standpoint of application in solid state physics. During the implementation of the project, the experimental capabilities have been significantly expanded.

In General, the project is original, and its implementation is not in doubt. It should be noted that JINR is in fact the only place on the territory of Russia with such experimental capabilities of the PAS methods. It would be advisable to organize a collective user Center that is open to all organizations in Russia.

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