INVESTIGATIONS OF MAGNETIC EFFECTS SUPPORTING THE SEPARATION OF HELIUM ISOTOPES

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Project description:

The world market is experiencing severe shortages in the supply of helium isotope - ^{3}He. In the future, this isotope can play an important role in solving the energy problems of our planet - its use in the phenomenon of nuclear fusion gives the greatest energy gain in the area of clean energy. The search for this rare isotope on Earth has already begun on the Moon. Also planets of our system, which do not have a shielding magnetic field, are taken into account. ^{3}He in the USA, as well as in Europe is treated as a strategic material.

The ^{3}He isotope deficiency may be remedied by an attempt to separate ^{3}He from liquid helium using the quantum filtration effect. The effects of this filtration can be magnified by using the magnetic properties of ^{3}He. Planned tasks will be focused on the study of the possibility of using modern magnetic and superconducting nano-materials in order to obtain high ^{3}He concentration in ^{4}He.

Aim of the project:

This project aims to clarify whether magnetic effects studied in modern magnetic and superconducting nano-materials can play a significant role in obtaining high concentrations of the ^{3}He isotope in the ^{4}He/^{3}He mixture.