

The results of the research in this area are the scientific basis for solving the problems of increasing the efficiency of separation processes, searching for new methods for separating and fine-tuning substances, determining the optimal conditions for their conduct, taking into account the requirements of ecology and safety.

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PROFILING OF NUCLEAR POWER PLANTS

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Nuclear Power Plants (NPP) comprises of components working together to generate heat energy for different applications including generation of electricity, production of radioactive isotopes and heating of homes. Studies are constantly done to improve reactor performance through better utilization and longer fuel cycle length. There are several factors which affect the performance of the reactor core including fuel enrichment, use of burnable absorbers, height of insertion of control rods and moderator design. These factors affect reactivity in different ways and proportions. For example, to maintain uniform power distribution at different levels of the reactor core, fuel of lower degrees of enrichment is used at regions of higher neutron flux while fuel with higher degrees of enrichment is used in regions of lower neutron flux. Therefore, to operate the reactor in safety standards, these factors should be profiled to ensure constant power and flux within the reactor. The study of the profiles of NPP will enable scientists and engineers develop and design standard and accurate components of nuclear power system.

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MEDICAL APPLICATIONS OF ACCELERATORS FOR RADIOLOGICAL STERILIZATION

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Introduction. Accelerators of electrons are very popular nowadays due to the latest achievements of nuclear technology in medicine. They are used as sources of ionizing radiation, as diagnostic equipment, in radiosurgery and in different modifications of X-ray equipment almost in all countries of the world [1].

Radiological sterilization of medical items is one of the biggest industrial processes using ionizing radiation. At present more than 50% of single-use medical items are sterilized particularly by this one [2].