

Bulgarian National Cyclotron Center

Tuesday 16 September 2014 15:30 (1h 30m)

The Institute for Nuclear Research and Nuclear Energy has successfully operated the first and only research reactor with scientific experimental base in Bulgaria during several decades. During the most active period of the research reactor, wide range of radioisotopes have been produced, such as ^{18}F , ^{42}K , ^{24}Na , ^{35}S , ^{45}Ca , ^{51}Cr , ^{59}Fe , ^{60}Co , ^{64}Cu , ^{82}Br , ^{86}Rb , ^{90}Y , ^{142}La , ^{169}Yb , ^{182}Ta , ^{192}Ir , finding their applications in industry and medicine. Shutting down of the research reactor left Bulgaria without local production of radioisotopes, and with limited possibilities for R&D and education in the field of radiochemistry and radiopharmacy.

Therefore the directors of the INRNE took the decision to create "National Cyclotron Center at INRNE-BAS" with the following goals: ensuring the growing needs in Bulgaria and the Balkans of radiopharmaceutical products for imaging diagnostics of cancerous diseases; creation of modern base for basic education of specialists for the nuclear energy and nuclear medicine; creating new generation of scientists to perform research in nuclear energy, nuclear physics, radiopharmacy, radiopharmaceutical chemistry, radioprotection and safety, radiobiology, etc. A new infrastructure will be built within INRNE-BAS, consisting of: specialized building, answering the regulations and standards for radiation safety and GMP in the pharmaceutical industry, vault with cyclotron accelerator for charged particles, R&D and innovations sector also with education purposes, sector for production of ^{18}F -FDG and in future - of other radiopharmaceuticals. INRNE will buy a cyclotron with energy of the proton beam of 24-30 MeV, which will allow us to produce wide range of radioisotopes in the next 20 years, such as PET isotopes - ^{18}F , ^{124}I , ^{64}Cu , $^{68}\text{Ge}/^{68}\text{Ga}$ and SPECT isotopes - ^{123}I , ^{111}In , ^{67}Ga , $^{99\text{m}}\text{Tc}$, as well as alpha-emitters - $^{225}\text{Ac}/^{213}\text{Bi}$, $^{230}\text{U}/^{226}\text{Th}$. This will create an opportunity for successful restart of the R&D activities in the field of radiopharmacy. This is a complex and large scale project, aiming at infrastructure and capability development in the area of nuclear technology, techniques and applications, and involving a strong component on procurement of equipment as well as human resources.

This presentation is contributing to the session Case studies, topic k) Explore different paths for new facility establishment.

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Session Classification: Poster Session