

National Cyclotron Center at the Institute for Nuclear Research and Nuclear Energy, Bulgarian Academy of Sciences

D. Tonev, N. Goutev, A. Demerdjiev, A. Artinyan, G. Asova, D.T. Dimitrov, A. Nikolov, L.S. Georgiev, V. Bashev, E. Geleva, M. Yavahchova, M. Mincheva, S.G. Genchev, V. Pavlova, E. Nikolova, K. B. Popova

*Institute for Nuclear Research and Nuclear Energy, Bulgarian Academy of Sciences,
“Tzarigradsko shaussee” 72 Blvd., 1784 Sofia, Bulgaria,*

Corresponding author: *dimitar.tonev@inrne.bas.bg*

Abstract

An accelerator laboratory is presently under construction in Sofia at the Institute for Nuclear Research and Nuclear Energy. The laboratory will use a TR24 type of cyclotron, which provides a possibility to accelerate a proton beam with an energy of 15 to 24 MeV and current of up to 0.4 mA. An accelerator with such parameters allows to produce a large variety of radioisotopes for development of radiopharmaceuticals. The most common radioisotopes that can be produced with such a cyclotron are PET isotopes like: ^{11}C , ^{13}N , ^{15}O , ^{18}F , ^{124}I , ^{64}Cu , $^{68}\text{Ge}/^{68}\text{Ga}$, and SPECT isotopes like: ^{123}I , ^{111}In , ^{67}Ga , ^{57}Co , $^{99\text{m}}\text{Tc}$. Our aim is to use the cyclotron facility for research in the fields of radiopharmacy, radiochemistry, radiobiology, nuclear physics, materials sciences, applied research, new materials and for education in all these fields including nuclear energy. Now we are working on the building construction project of the National Cyclotron Center in Sofia. We perform investigations in the fields of target design for production of radioisotopes, shielding and radioprotection, new ion sources etc.

Key Words: TR24 cyclotron, production of PET and SPECT isotopes, building project

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