

Possibilities to Apply Linear Electron Accelerators as a Pulsed Neutron Sources,

T. ANGELESCU, A. MIHUL, University of Bucharest, Faculty of Physics, Bucharest, Romania; N. BALTATEANU, E. MITRU, F. SCARLAT, National Institute for Laser, Plasma and Radiation Physics, Bucharest, Romania - Application of Linear Electron Accelerator as a pulsed neutron source is based on Bremsstrahlung of average energy electrons, specially that grater than 10 MeV. The possibility to obtain intense neutron fluxes by linear accelerators enlarged to research domain in accelerator physics and their application such as: chemical analysis by neutron activation, for neutron spectroscopy, neutronographies, nuclear fuel recycling etc. The paper presents the calculation to optimise some conversion targets (g,n) made of Pb, Au, Pt as well as of fissionable targets (^{238}U) by reaction (g,f). The choice of the target optimum thickness to generate neutrons has been made for two cases: when wishing to obtain for neutrons or thermal neutron fluxes. The results for theoretical calculations and for optimising as regards the conversion field, have been tested with two types of electron accelerators with 10 and 17 MeV energy, made in the Institute of Atomic Physics Bucharest, Romania.