

**CALCULATION OF NEUTRON SPECTRA AT THE ELECTRON TEST
LINAC OF PAL AND THE MC50 PROTON ACCELERATOR OF KIRAMS**

Bong-Hwan Kim¹⁾, Hyun-Ki Kim²⁾, Seong-Woo Kwak³⁾ and Hee-Seock Lee⁴⁾

¹⁾ Korea Atomic Energy Research Institute, ²⁾ Korea Institute of Radiological and Medical Science,

³⁾ National Nuclear Management and Control Agency, Korea and ⁴⁾ Pohang Accelerator Laboratory,
POSTECH, Korea

Abstract

The MCNPX was used to calculate neutron fluence spectra generated using targets of lead and beryllium bombarded with electron and proton, respectively, at the electron test LINAC of PAL and the MC50 proton accelerator of KIRAMS in a series of the quantification of neutron fields. Neutrons were produced from a target struck by electrons with energy of 65 MeV and from two Be targets of different thickness, 1.0 and 10.5 mm, bombarded with 35 and 45 MeV protons. Major geometrical configurations such as a beam stopper and the gantry to collimate neutron at the MC50 facility were simulated to describe neutron fields as realistically as possible while the simple geometry was considered in case of the LINAC of PAL. Additional calculation for the facility of National Accelerator Center (NAC) in South Africa was performed for the purpose of comparison.