

200 MeV Energy Upgrade Plan of KOMAC Proton Linac for Atmospheric / Space Radiation Test Facility

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Recently, the influence of the space and atmospheric radiation on the memory semiconductor devices is ever increasing due to the high degree of integration. These phenomena can induce a dangerous situation to the commercial products supported by cutting-edge technology such as autonomous car. Therefore, there are international standards to test the memory semiconductor devices using ion and neutron beams before they are used for commercial products. 200 MeV energy upgrade of the existing proton linac is planned to test the semiconductor devices by proton beam and neutron beam at Korea Multi-purpose Accelerator Complex (KOMAC). The facility consists of 200 MeV linac upgrade based on superconducting technology, beamline and irradiation room. High energy neutrons up to 200 MeV will be produced from the neutron production target. Two irradiation rooms are installed after the target in order to conduct the neutron irradiation test. In addition, 200 MeV proton beam is directly supplied to users through the collimator which reduces the proton beam flux and octupole magnet to make uniform beam profile. In this paper, a plan for the energy upgrade of proton linac as a atmospheric / space radiation test facility at KOMAC is presented.

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