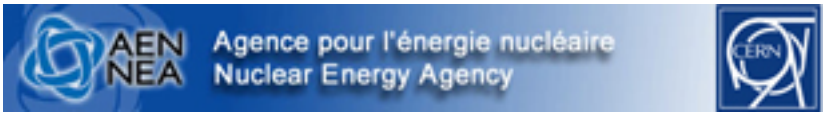

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Radiation Protection Aspects of the SPES facility at LNL

Thursday, June 3, 2010 11:30 AM (20 minutes)

The SPES (Selective Production of Exotic Species) Project will be built at the National Laboratories in Legnaro (Italy) of the National Institute of Nuclear Physics (INFN). Its goal will be the development of radioactive ion beams and the consequent re-acceleration with the already existing Linac, to perform forefront research in the frame of nuclear physics. Radiation protection aspects play along with every stage of the project e.g. civil construction planning, control system design and special technological plants. These aspects have been studied with the Monte Carlo transport code FLUKA.

Summary

For the production of the primary beam at the SPES facility a 70 MeV proton cyclotron will be used with a maximum current on target of 300 microA. The target is made of 30 g of uranium carbide and the foreseen neutron yield is 1E+14 per second.
All the shielding aspects of the facility have been investigated as well as the activation of the material interacting with the primary beam and the issue of the air activation. Preliminary decommissioning considerations concerning the shielding concrete walls are also made and other new shielding techniques recently proposed have been taken into account especially with their shielding properties and activation under long irradiation times.

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