

New thermal neutron source at LNL

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In the framework of MUNES project, a new neutron source was developed at the CN electrostatic accelerator of Legnaro National Laboratories.

Neutrons are produced through Be(p,n) reaction using a thin foil beryllium target brazed on a copper base. A 5 MeV, 3 microA proton beam is focalized onto the target so as to reach a 500 W/cm^2 power density on beryllium, the same as MUNES high intensity accelerator.

A heavy water-graphite moderator is used for neutrons thermalization.

Preliminary results show that a $1.210^6 \text{ s}^{-1}\text{cm}^{-2}$ neutron density can be generated at the extraction window with a uniformity better than 1% over a 25 cm diameter circular area.

Neutron spectrum is more than 90% thermal with a very low gamma contamination.

If a proceedings is prepared, will you submit a contribution?

Yes

Primary author: FAGOTTI, Enrico (INFN-LNL)

Co-authors: PISENT, Andrea (INFN-LNL); POLA, Andrea (Politecnico Milano); MORO, Davide (INFN-LNL); COLAUTTI, Paolo (INFN-LNL); BEDOGNI, Roberto (INFN-LNF); Dr BORTOLUSSI, Silva (INFN-PV)

Presenter: FAGOTTI, Enrico (INFN-LNL)

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