PAUL SCHERRER INSTITUT

NES Colloquium

Tuesday, 8 November 2016, 11:00 - 12:00, WHGA/001 Auditorium (PSI)

n_TOF at CERN: a bright future for neutrons

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Since 2001, based on an idea by Nobel Prize Carlo Rubbia, a wealth of neutron capture and neutron-induced fission reactions has been measured at CERN n_TOF (Time-of-flight facility) providing an important contribution to a wide variety of research fields.

The outstanding features of neutron beams are: the very high instantaneous neutron flux, excellent TOF resolution, low intrinsic backgrounds and coverage of a wide range of neutron energies, from thermal to a few GeV. These characteristics provide a unique possibility to perform measurements for applications in nuclear astrophysics, nuclear reactor technology, basic nuclear physics and medical application. A wide variety of measurements have already been performed since the facility became operational and made available to the nuclear data and nuclear physics community.

The overall efficiency of the experimental program and the range of possible measurements achievable with the construction of a second experimental area (EAR-2), vertically located 20 m on top of the n_TOF spallation target, might offer a substantial improvement in measurement sensitivities.