

Joint seminar of the NPI of the CAS

Mgr. Stanislav Valenta, Ph.D.,
Institute of Particle and Nuclear Physics,
Faculty of Mathematics and Physics, Charles University:

Measurement of neutron-induced reactions using n_TOF @ CERN

In 1998, Carlo Rubbia et al. proposed a high-resolution spallation-driven facility at CERN's PS to measure neutron cross-sections in a wide interval of neutron energies. The main motivation was to accurately measure the cross sections of neutron-induced reactions relevant to the design of Accelerator Driven Systems.

The n_TOF facility was constructed and became operational in November 2000. The group from the Faculty of Mathematics and Physics of Charles University joined the collaboration in 2004, just in time for Phase 2 of n_TOF data-taking, and has been a member ever since. Following CERN's schedule of the accelerator complex, the n_TOF collaboration took advantage of each long shutdown building two additional experimental areas. Most recently the n_TOF facility was successfully restarted in July 2021 after CERN's Long Shutdown 2, featuring three experimental areas and operating a 3rd generation spallation target.

Focusing on the statistical gamma decay of highly excited nuclear states, the Prague group has participated in analyses of many neutron capture cross section measurements with medium-, heavy-mass, and actinide samples.

After introducing the n_TOF facility and mentioning the key moments of n_TOF's history, I will give an overview of performed measurements, highlighting those with significant participation of our group.

The seminar will take place on Thursday, February 9, 2023 at 10:00 a.m. in the NPI meeting room (conference room).