



## *Séminaire du Laboratoire de l'Accélérateur Linéaire*

**Paolo Valente**

INFN Roma

**Mercredi 24 Septembre 2014 à 11 :00**

## **The Frascati Beam-Test Facility : ten years experience and prospects for the future**

The BTF (Beam-Test Facility) is part of the DAFNE accelerator complex and is composed by an extraction line from the LINAC, beam attenuation and energy selection system, collimation and a transport line. The BTF has been commissioned in year 2002 and has been delivering beam to experiments and detector tests almost continuously since 2003. In 2004 a major upgrade allowed to add a tagging system for Bremsstrahlung photons and the selection of the sequence of bunches to be extracted to the BTF, among the 50/second delivered by the LINAC. Since 2008 a project (n at BTF) for the feasibility study of a photo-production neutron source using the full BTF electron beam is going on successfully.

The main characteristic of the facility is the large flexibility of the BTF beam parameters : the beam intensity can be selected from  $10^{10}$  particles/pulse down to the single particle, the electron/positron energy can be selected from few tens to 750/550 MeV, the position and spot can be monitored and adjusted down to millimetric size, while the pulse duration can be varied in the range 1.3-40 ns.

In the last 10 years of operation, the DAFNE Beam-Test Facility has delivered an average of 220 beam- days/year, providing access to a large number of experimental teams. In order to further enlarge the access to the HEP/astro-particle community to the BTF, and in particular to expand the potential of the facility for detector development and testing, different types of improvements and upgrades are planned, and in particular : increasing the number of beam lines with respect to the present single one, further reducing the impact of the operation of the DAFNE collider on the BTF efficiency and flexibility ; improving the neutron source, presently in the characterization phase, also optimizing the target, and adding reflectors/neutron-guides and moderators ; rising the maximum BTF energy from about 750 MeV to 1.2 GeV, without important civil engineering.

Finally, a recent proposal of using the LINAC/BTF positron and electron beams for fixed target and beam-dump experiments for light dark matter searches has been put forward.

**Auditorium Pierre Lehmann du LAL - Bât. 200, Orsay**

Thé et café seront servis 1/4h avant le séminaire

