

**Workshop**  
on  
**Physics**  
with a  
**multi-MW proton source**  
**CERN, May 25-27, 2004**

<http://physicsatmwatt.web.cern.ch>

## First Bulletin

The Workshop intends to explore both the short and long-term opportunities to particle and nuclear physics offered by a multi-MW beam with a few GeV from a proton linear accelerator or a rapid cycling synchrotron. In particular, it can provide a superior neutrino facility with unprecedented sources of intense muon and electron neutrino beams, superior slow muon and kaon facilities, and a world-leading radioactive ion beam facility for nuclear, astro- and fundamental physics (EURISOL).

The Workshop is organized jointly by the ECFA/BENE Network on "Beams for European Neutrino Experiments" and by the EURISOL Design Study Collaboration.

It is our hope that the Workshop can bring useful contributions to the debate on strategic accelerator R&D choices in Europe that will be selecting the most promising options in the near future. A summary of the Workshop conclusions will be proposed, along with all slides, on the Web Site of the Workshop.

The Workshop wants also to attract more physicists to join the working groups and various other initiatives active since a few years in both the BENE and EURISOL framework.

The Workshop will open with a welcome address of the CERN DG, R. Aymar, and with a general introductory session on the merits and challenges of physics at high intensity. It will then have an accelerator session, a particle physics session, a nuclear physics session and a final outlook session.

### 1. Topics will include

- the motivations of a new multi-MW proton driver and its impact on CERN
- the option of a multi-MW Superconducting Proton Linac
- the option of a Rapid Cycling Synchrotron with similar beam power
- the potential of a conventional neutrino Superbeam (accumulator, target, horn) and of a Neutrino Factory Complex (muon phase rotation, cooling, acceleration, storage)
- the potential of a new EURISOL Nuclear Physics Facility (high power target(s), mass separator, charge-breeder, and post-accelerator.)

- the potential of a Betabeam neutrino facility at CERN

and the scientific opportunities offered by such facilities

- the physics of the resulting new European Neutrino Complex, in conjunction with neutrino detectors in deep underground European laboratories
- the physics of a new high intensity low energy muon source
- the physics of higher intensity synchrotrons or super-synchrotrons with kaons, muons, neutrinos
- the physics of radioactive beams – impact on nuclear structure; nuclear dynamics; nuclear astrophysics; fundamental physics;  $\mu$  and  $\pi$ -bar nuclei

## 2. Date of the workshop

The Workshop will start after lunch Tuesday 25 May and will continue until lunchtime on Thursday 27 May 2004.

## 3. Registration and practical details

Registration is made on-line on the conference web-site <http://physicsatmwatt.web.cern.ch>. The deadline for registration is April 29.

There will be a registration fee of 125 CHF, payable on cash upon arrival. This will include the workshop dinner which will take place on the evening 26<sup>th</sup> May. Hotel reservation can be made via e-mail to: [cern.hostel@cern.ch](mailto:cern.hostel@cern.ch) where a block of rooms has been pre-booked.

## 4. Talks and Posters

The Workshop Program will be ready by the time of the 2nd Bulletin (end of April).

Because of time constraints, only plenary and by invitation talks are foreseen.

We welcome and encourage submission of abstracts to [Peter.Butler@cern.ch](mailto:Peter.Butler@cern.ch) and/or to [Andre.Rubbia@cern.ch](mailto:Andre.Rubbia@cern.ch). A selection of papers will be invited for a Poster session, planned for the morning of Thu May 27. .

## 5. Local Organizing Committee

M. Benedikt (CERN), A. Blondel (Geneva), P. Butler (**co-chair**), L. Ghilardi (CERN), G. Giudice (CERN), E. Gschwendtner (Geneva), M. Lindroos (CERN), V. Palladino (**co-chair**), M. Vretenar (CERN)

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## **8. Contact**

Please address your enquiries to the Secretary of the Workshop, Lydia Ghilardi (Lydia.Ghilardi@cern.ch).