

# **DITANET workshop on Particle Detection Techniques**

Centro Nacional de Aceleradores

Seville, 7-8 November 2011

A stylized, dark teal mountain range graphic is positioned at the bottom right of the slide, extending from the right edge towards the center.



MINISTERIO  
DE EDUCACION  
Y CIENCIA

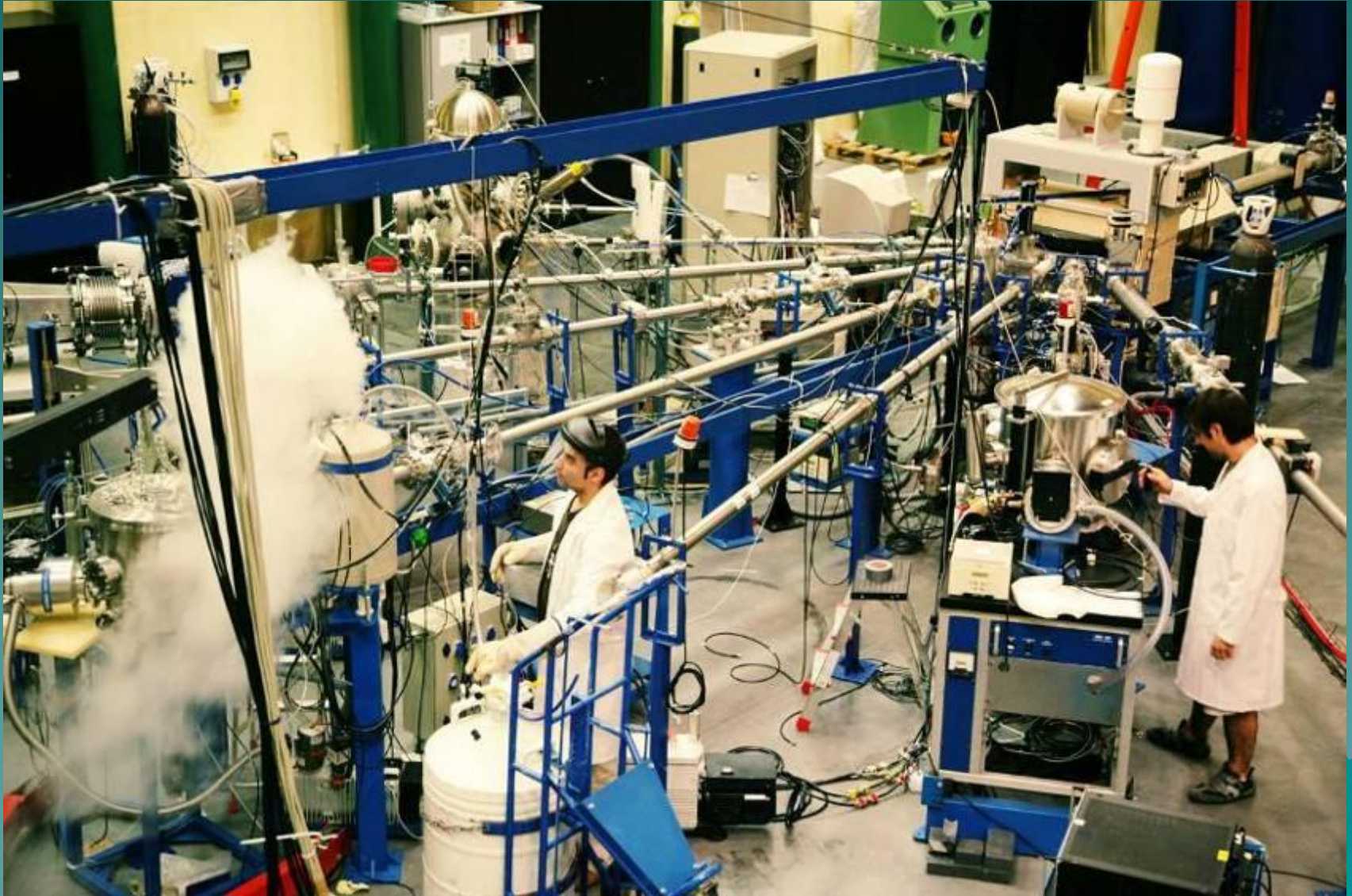
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# Tándem 3MV



# Líneas (7)



# Ciclotrón de 18 MeV (p)



Producción de radiofármacos PET

$^{18}\text{F}$ ,  $^{11}\text{C}$ ,  $^{13}\text{N}$ ,  $^{15}\text{O}$

**Colaboración con IBA**



Línea externa: implantación,  
daños por radiación

# Radiofarmacia



Se ha producido FNa y  
FLT (Fluorotimidina)  
para investigación.

IBA-Molypharma distribuye  
FDG a los centros sanitarios  
del SAS

# SARA, AMS system in CNA



# New facilities at CNA

Best  
Theratronics



Underground laboratory



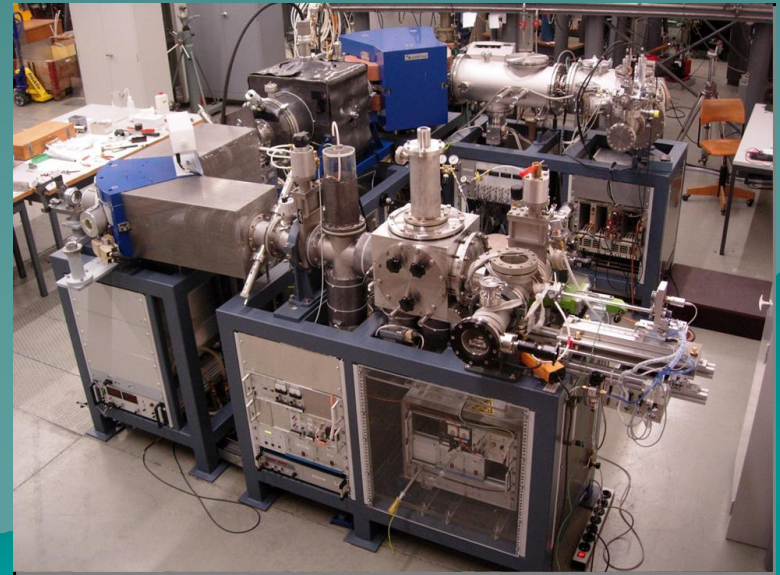
Gammabeam® X200  
Research Irradiator

60 Co irradiator




PET-CT  
scanner

14C AMS  
compact  
accelerator





# Objectives and research lines

- ◆ Materials science
  - ◆ Nuclear science and technology.
  - ◆ Accelerator mass spectrometry (AMS)
  - ◆ Production of PET isotopes and bio-medical research.
- 
- A decorative graphic at the bottom right of the slide, consisting of a silhouette of a mountain range in a teal color, matching the background.



# DITANET

« novel Diagnostics Techniques for future particle Accelerators:  
A Marie Curie Initial Training Network »



# What is DITANET ?

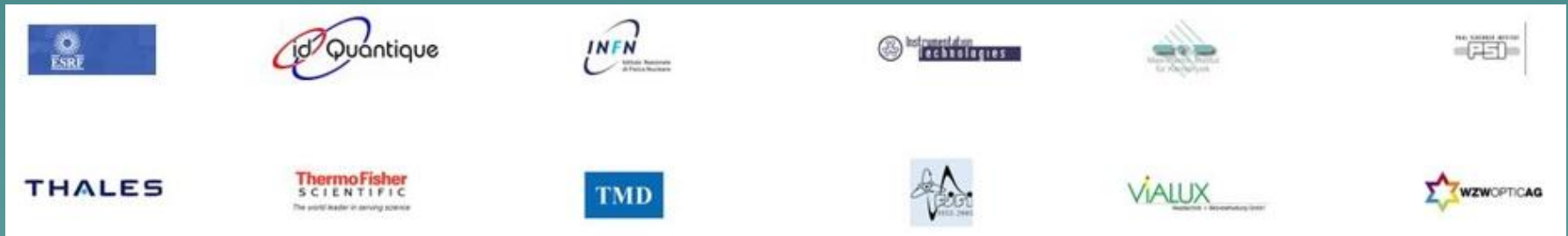
- ◆ Largest-ever EU funded training network in beam instrumentation and diagnostics;
- ◆ Aim: Training of early stage researchers (*18 ESRs, 3 ERs*)
- ◆ Gives industry an important role;
- ◆ Presently 28 partners (*and growing...*)
- ◆ Recognized importance of beam diagnostics at European level !  
from 905 selected - with 11 in physics) at (only 68

# The DITANET Consortium

## Network Participants



## Associated Partners



# Adjunct Partners

- ◆ Part of a long term strategy – DITANET is growing




# Dissemination: DITANET Website

The screenshot shows the DITANET website interface. At the top left is the University of Liverpool logo. To the right are navigation links: University: [Home](#) | [A-Z Index](#) | [Staff](#) | [Students](#). Below this is a search bar with tabs for 'Website' and 'Courses', and a 'SEARCH' button. A breadcrumb trail reads: You are here: [University Home](#) > DITANET home.

The main content area is titled 'DITANET'. It features a left-hand navigation menu with the following items: DITANET home, Network structure, Projects, Vacancies, Documents, News, Events, Beam Instrumentation Booklet, Administration, Downloads, and Links. The main text area contains the following content:

**DITANET**

The development of novel Diagnostic Techniques for future particle Accelerators is the goal of a new European Network (DITANET) that was installed within the Marie Curie ITN scheme.



Without an adequate set of beam instrumentation, it is impossible to operate a particle accelerator - let alone optimize its performance.

In this frame, several major research centers, leading Universities, and partners from industry will develop beyond-state-of-the-art diagnostic techniques for future accelerator facilities and jointly train students and young researchers within a unique European structure.

At the bottom, there are logos for 'PEOPLE' (a stylized number 7) and 'MARIE CURIE ACTIONS' (a 2x2 grid of colored squares).

**News**

The DITANET School on complementary skills took place at the University of Liverpool (UK) 15th-19th March 2010. Further information.

**DITANET Prize - Winner 2010**

**Partners Area and DITANET Blog:** Login to VOCAL

[www.liv.ac.uk/ditanet](http://www.liv.ac.uk/ditanet)

# Quarterly Newsletter

- ◆ Part of the dissemination strategy
- ◆ Contribution from all network partners
- ◆ Announcement and review of activities

The image displays two versions of the DITANET newsletter. The top version is the October 2009 issue, Issue 1. The bottom version is a later issue, likely the 2010 issue, featuring a letter from the coordinator.

**NEWSLETTER**  
October 2009  
Issue 1

**DITANET**

**Special Interest News:**

- Announcement of Annual DITANET Prize
- Recent Publications

**Individual Highlights**

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**Welcome to the First Newsletter of the EU Network DITANET!**

Beam diagnostics systems are essential constituents of any particle accelerator; they reveal the properties of a beam and how it behaves in a machine. Without an appropriate set of diagnostic elements, it would simply be impossible to operate any accelerator complex let alone optimise its performance. Beam diagnostics is also a rich field in which a great variety of physical effects are made use of, and consequently provides a wide and solid base for the training of young researchers. Moreover, the principles that are used in any beam monitor or detector enter readily into industrial applications or the medical sector, which guarantees that training of young researchers in this field, is of relevance far beyond the pure field of particle accelerators.

The Marie Curie Initial Training Network DITANET – 'Diagnostic Techniques for particle Accelerators' - a European NETWORK is the largest-ever EU funded education action for PhD students and young Postdocs in beam instrumentation for accelerators with a project budget of up to 4.16 M€. The network presently consists of 27 partner institutions, including universities, research centres, and private companies. DITANET has now filled most of its position vacancies with first research results becoming visible, and already organized international meetings and schools. The network aims at strengthening the existing links in the beam diagnostics community and at building up new long-term partnerships.

With this newsletter, the network would ask you to participate in our activities and share with you our enthusiasm for this field. DITANET gives us a unique chance to further improve the performance of our research infrastructures, to push instrumentation beyond the present state of the art, and I am looking forward to exciting times!

**DITANET Prize 2009**

The network announces its first Prize in Beam Diagnostic Techniques. It will award a 1,000 € cash prize for an outstanding contribution to the field of beam instrumentation for particle accelerators by a researcher in the first five years of his/her professional career.

The deadline for applications is 31<sup>st</sup> January 2010 and full information on how to apply can be found on the DITANET website: [www.liv.ac.uk/ditanet](http://www.liv.ac.uk/ditanet)

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The LHC pushes accelerator science and technology in many different fields, including a number of beyond state-of-the-art developments in beam instrumentation. This requires close collaboration between partners, the exploitation of synergies wherever possible, and a long term R&D planning.

Besides its contributions to optimizing existing particle accelerators, the network is also involved in central developments for future facilities, such as the Facility for Antiproton and Ion Research (FAIR) in Germany. By bringing together early stage and experienced researchers from all over the world in its first topical workshop on low energy, low intensity beam diagnostics, DITANET follows its goal of encouraging knowledge exchange between partners and driving new developments.

2010 promises to be another very exciting year for our community with many interesting events such as the BIW and IPAC in May. DITANET will organize a number of training events and I would like to use this opportunity to encourage you checking our web page on a regular basis.

*Carsten P. Weisch, Coordinator*

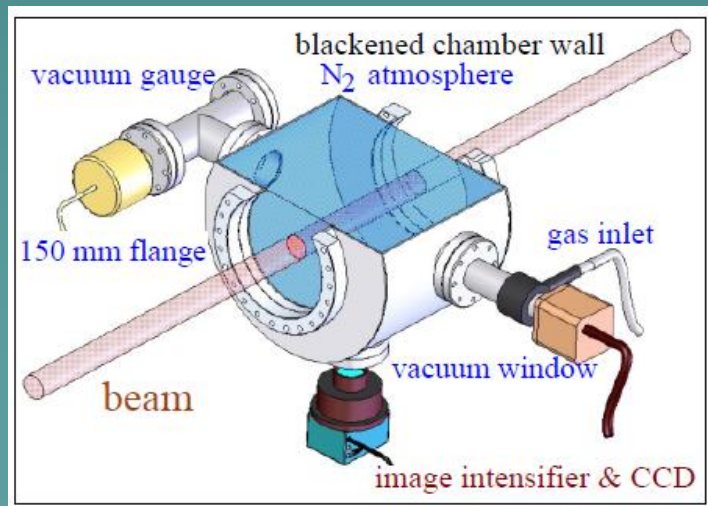
**DITANET Prize 2009: Applications still open**

Applications are still open for the Network's first Prize in Beam Diagnostic Techniques. A 1,000 euros cash prize is awarded for an outstanding contribution to the field of beam instrumentation for particle accelerators by a researcher in the first five years of his/her professional career. The deadline for applications is 31<sup>st</sup> January 2010 and full information on how to apply can be found on the DITANET website: [www.liv.ac.uk/ditanet](http://www.liv.ac.uk/ditanet)



# Dissemination: DITANET Prize

- ◆ For early stage researchers, **1.000 €**
- ◆ International Competition, open to external candidates
- ◆ First award: Dr. Frank Becker, GSI, Germany for Beam Induced Fluorescence (BIF)-Monitor



**Next Call: 31.10.2011**