Program

13:00h Welcome, Helmut Schober

13:10h Historical view on BSS, Toni Heidemann

13:30h General presentation of the aims of the IN16B project, Bernhard Frick

13:50h Technical challenges and realisation of IN16B, David Bazzoli

14:30h Neutron optics simulations for IN16B, Tilo Seydel

15:00h coffee

15:30h IN16B test results on standard samples, Bernhard Frick

15:40h IN16B: Potential for biological experiments and first results on spores, Judith Peters

15:50h IN16B experiments on membranes for fuel cells, Sandrine Lyonnard

16:00h Proteins in crowded solutions - new possibilities with IN16B, Marco Grimaldo

16:10h Molecular dynamics of ferrocene investigated on IN16B - more than just spectra and elastic scans, Markus Appel

16:20h Future extensions of IN16B for the BATS/GaAs option - a BMBF financed project, Markus Appel

16:30h visit of IN16B

17:30h aperitif

INVITATION

It is our pleasure to invite you to participate in the inauguration of the new high flux backscattering spectrometer IN16B.

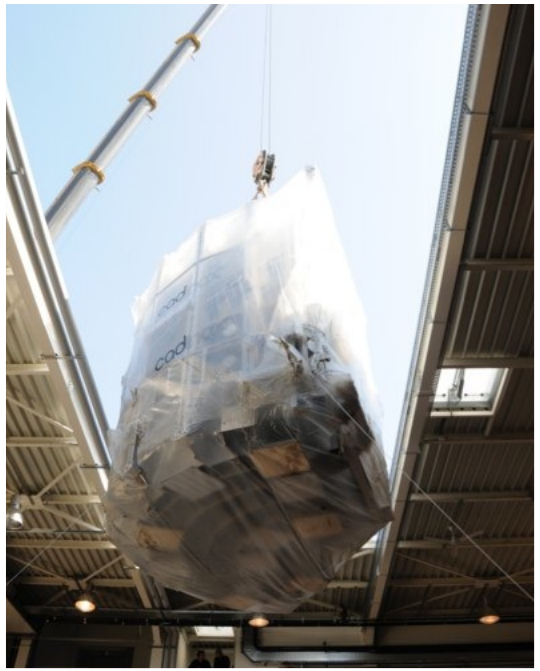
After two cycles of tests and commissioning of IN16B we have served in a full cycle our first users.

We will celebrate this event with a few presentations, a visit of IN16B and a toast to a bright future.

INSTITUT LAUE-LANGEVIN
TOF/HR -group
6, rue Jules Horowitz
www.ill.fr

NEUTRONS FOR SCIENCE®

IN16B INAUGURATION

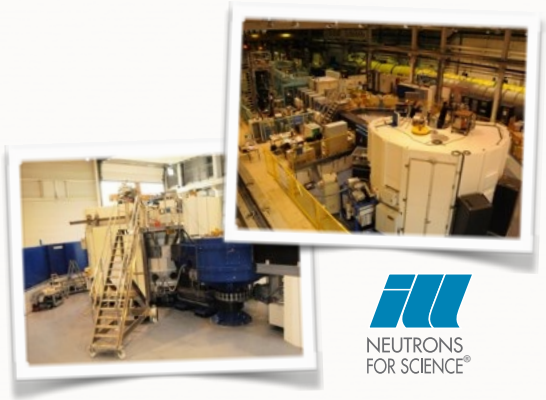


11 December 2013

13:00h - 18:00h

ILL - Chadwick lecture hall

NEUTRONS FOR SCIENCE®



The new high flux backscattering instrument IN16B at ILL in July 2013

IN16B is the new cold neutron back-scattering spectrometer, constructed within the Millennium program of ILL. It replaces IN16, which was shut down in July 2013, and IN10 which is no longer in user operation.

In 2013 we used two reactor cycles for commissioning of the Si(111)-'high flux configuration' and the third reactor cycle for experiments which had been accepted by the subcommittees for IN16.

In 2014 IN16B will be open for proposal submission. We will still need to keep some time back over the next two years for commissioning the remaining configurations and for implementing the options (BATS/ GaAs) recently financed by the German ministry BMBF.

NEW PERFORMANCE & POSSIBILITIES

The unprecedented flux and performance of IN16B will allow for a new category of sub-μeV energy resolution experiments with smaller samples and will allow for parametric studies combining Doppler spectra with elastic and inelastic fixed window scans.

HIGHER NEUTRON FLUX: ~10 X IN16

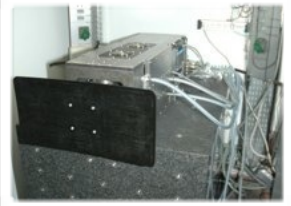
Compared to the late IN16 the neutron flux on IN16B is increased by roughly one order of magnitude. This originates firstly from the new neutron guide H112 with its quasi-ballistic design and its focusing at the end towards the Phase Space Transformer (PST), secondly from the PST itself which offers an optimised phase space to the backscattering monochromator. The background is reduced by a background chopper and vacuum chamber.

new neutron guide H112 during construction

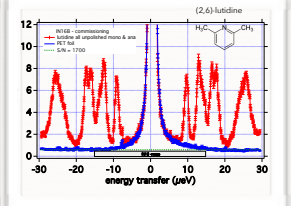
PST disc during tests

WIDER DYNAMIC RANGE: 2 X IN16

The linear motor Doppler drive of AEROLAS was purchased early in the construction phase of IN16B and it was tested and used on IN16 with minor profit from a wider energy transfer range due to the narrow incident wavelength band. On IN16B the PST offers now a wide enough wavelength band to get a high intensity at the highest energy transfer of ±31 μeV.



Linear motor Doppler drive by AEROLAS



Rotational tunneling IN16B; (gray bar equals IN16 range)

LARGER ANALYSERS: ~ 2 X IN16

For the large angle analysers the surface is doubled by building new taller crystal support structures. The spherical analyser support is now made from composite material with carbon fibre and Boron filled epoxy. Larger Si-wafers than used before are glued under deformation onto the spherical support with radius of 2m. A new detector accepts the increased vertical space angle.

Alignment of the analyser support at ILL

New analyser support at "SCIENTIFICA" site