

ELENA Instrumentation Workshop Paris 2025

FIAP Jean Monnet, Paris 14^{ième}

April 7-8th 2025

Provisionnal program

Monday April 7th

12h00 Possibility to have lunch at the FIAP Self
Open from 11h45 to 1h45 pm

Presentation of HiCANS projects General scope and ambitions

14h00 - 14h10 ESS-Bilbao overview

14h10 - 14h20 HBS Overview

14h20 - 14h30 ICONE Overview

Imaging engineering

14h30 - 14h45 Jochen Fenske « Engineering Diffraction @ HBS »

14h45 - 15h00 Tobias Juenger « Neutron Imaging for ICONE »

15h00 - 15h15 Norberto Schmidt « Neutron imaging instruments for HBS »

15h15 - 15h30 Frédéric Ott « Statistical choppers at long pulse sources »

15h30 - 16h00 **Round Table → Engineering - Industry**

16h00 - 16h30 **Pause**

Spectroscopy

16h30 - 16h45 Kyriakos Karios « FANTASTIC, an Inverse TOF for ICONE »

16h45 - 17h00 Jorg Voigt « Spectroscopy at HBS »

17h00 - 17h15 ESS-Bilbao

17h15 - 18h00 **Round Table → Spectroscopy**

18h00 End of the day

19h00 **Evening dinner**
Maison Péret, 6 rue Daguerre, 01 43 22 57 05

Tuesday April 8th

Neutron extraction and transport

(interfacing with TMR – Direct line-of-sight – Bispectral extraction)

9h00 - 9h15

Richard Wagner « Nested Mirror Optics »

9h30 - 10h15

Round Table —> Source – Instruments interfacing

10h15 - 10h45

Pause

Simulation Tools

10h45 - 11h00

K. Lieutenant « Simulation of HiCANS instruments »

11h00 - 11h30

Round Table —> Simulation Tools

11h30 - 12h00

Round Table —> Collaborations

12h00

Lunch at FIAP

13h30 - 14h30

Time for face to face discussions

14h30 - 15h30

ELENA General Assembly

Round Tables – Possible topics

You shall find below issues which have been encountered along discussions around HiCANS. The list is non exhaustive, please update it or add suggestions.

The generic goal is to exchange on some of these topics to have a return of expertise of the different groups and to assess what guided some of the choices, what could be underlooked issues and what are possible future priority topics.

Some points may have clear cut answers. For some points the answers are not technical but scientific. Some issues may be beyond what is currently known or will present underlooked issues.

Round Table —> Engineering - Industry

- How is industrial use defined ?
- What fraction of industrial use can expect
- How should the industrial access be organized
 - Priority access
 - Full cost – reduced cost
- Issues of the experiment preparation + experiment exploitation

Spectroscopy :

- What are efficient choices on HiCANS ?
- Cost – performance values
 - Ex. Direct TOF / Indirect TOF
 - Ex. Spin-Echo / Backscattering
- Scientific case
 - Generic instrument or more narrow fields
- Competitiveness
 - What science field require such instruments ?
 - Instrument productivity ?
 - Competitiveness Vs ESS&ILL
- Which technique is the most accessible to users ?
 - Decreasing expertise in TAS

Source interfacing

- What type of guides ?
 - Straight – elliptic – NMO
- Direct line of sight
 - Instruments are shorter at CANS than at ESS
 - Is it critical ?
 - guide systems – chopper integration – moderator sizes – Bispectral extraction
- How close should / can the choppers be installed ?
- Natural pulse shape Vs Pulse Shape Choppers
 - Which instruments can live with natural pulse shape ?
- Moderators
 - How small is realistic
 - Bispectral extraction : which instruments benefit most ?
- Guide shielding
 - Common shielding or not ?

- Maintenance issues
 - What frequency ?

Simulation tools

- Beyond McStas / VITeSS
 - More realistic samples
 - Ex. SANS : no inelastic effects
 - Ex. Reflecto : no off-specular, no incoherent
 - OpenMC - PHITS
 - NCrystal capabilities
 - OClimax
- Background estimations
 - Sample scattering – incoherent – sample environment
 - Simulations Tools (OpenMC – PHITS)
- Instruments benchmarking
 - ISIS – PSI - ILL
 - How to sell « very good performances »
How to convince that the instruments can be so good ?
Be careful on « overstatements »
 - Compare with raw upstream brilliance, flux at sample position ; actual data sets
 - Compare with existing instruments ? or potentially best instruments
 - Ex. G41@ORPHEE Vs PRESTO or PRESTO Vs POWGEN ?
 - Use Virtual instruments tools (see ILL – FRM2)
- What about fancy concepts ?

Collaborations

- On which topics can we aim for concerted actions ?
 - Mutualisation of tools
 - Generic guidelines : why such choices PRO/CONS
 - Shielding ?
 - Background ?