The NuBall2 Project

Gabriel CHARLES

Outline of this fantastic presentation

Also called a journey through the pictures of my phone

The part to thank people

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The part to show pictures

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A part with experiments

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The part to thank people

The part to show pictures

A part with experiments

Mainly showing nice pictures
With nice equipment (sometimes)
And nice people (sometimes)

NuBall2 in a nutshell

- ALTO is world leader in construction, use and deployment of *hybrid* arrays. The nu-Ball2/PARIS configuration will be the most efficient hybrid array ever built

- These types of experimental campaign help give ALTO a high international visibility and attract visitors from all over Europe and the rest of the world (e.g. nu-Ball1 campaign 2017-2018: 150 scientists from 37 institutions in 16 different countries)

- Nu-Ball2 will bring together existing equipment from several partners:

γ-detectors (3 different hybrid geometries)

Clover Ge's (Gammapool EU consortium)

PARIS phoswhich's (PARIS collaboration)

Co-axial Ge's (UK/France loan pool)

FATIMA LaBr3 (Surrey/Madrid)

Coupled ancillary detectors

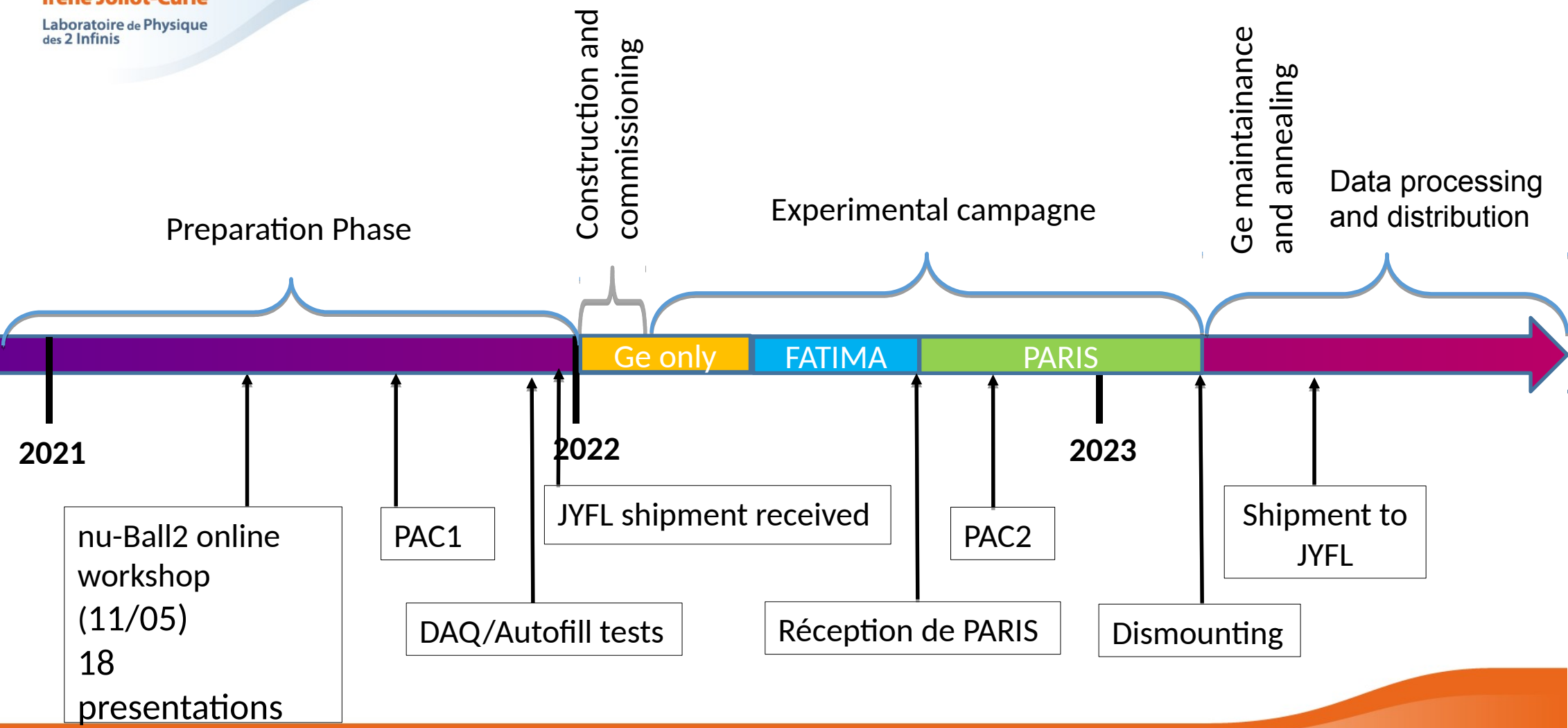
TFGIC (JRC-Geel EU commission)

DSSD (HIL Warsaw)

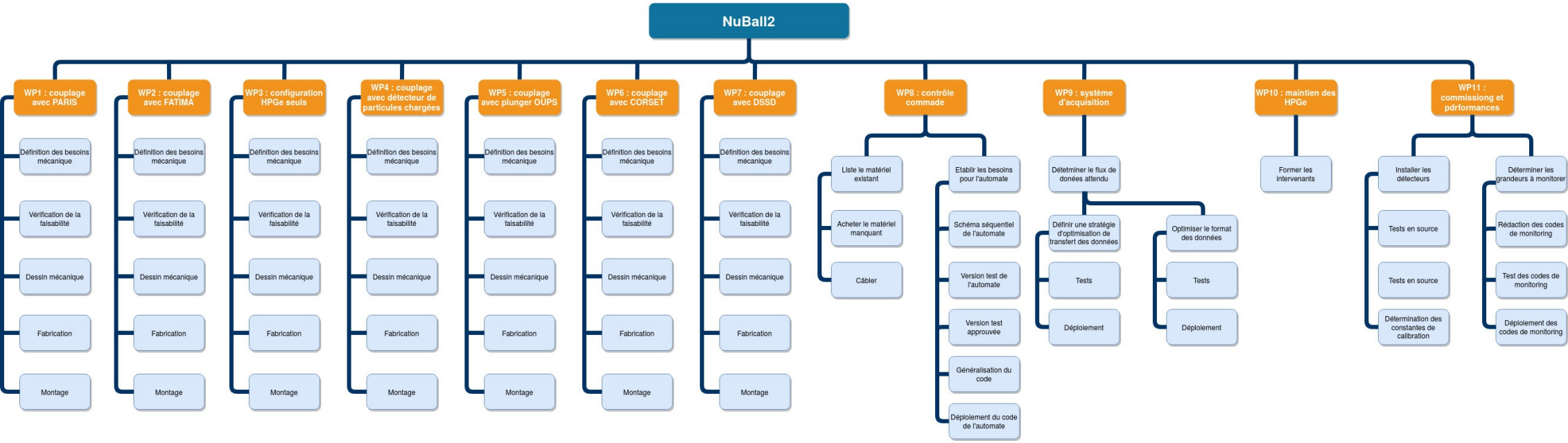
OUPS/OPSA (IJC Lab)

CORSET (JINR Dubna)

Timeline


Preparation Phase
Construction and commissioning
Experimental campagne
Ge maintainance and annealing
Data processing and distribution
Ge only
FATIMA
PARIS
2021
2022
2023
nu-Ball2 online workshop (11/05) 18 presentations
PAC1
DAQ/Autofill tests
JYFL shipment received
Réception de PARIS
PAC2
Dismounting
Shipment to JYFL

Work Breakdown Structure



Technical support

	2021	2022	2023
Bernard Mathon	0%	5%	0%
Miktat Imre	0%	5%	0%
Carlos Domingues-Goncalves	0%	5%	0%
Brice Geoffroy	0%	5%	0%
Thi Trung Nguyen	5%	10%	0%
Christine Le Galliard	30%	5%	5%
Gabriel Charles	20%	40%	20%
Nourredine Hammoudi	5%	20%	20%
Mariya Georgieva	5%	10%	10%
Tony Viaud	40%	5%	0%
Olivier Dalifard	40%	5%	0%
Jérémy Favre	0%	5%	5%
TOTAL (FTE)	**1,45**	**1,20**	**0,60**

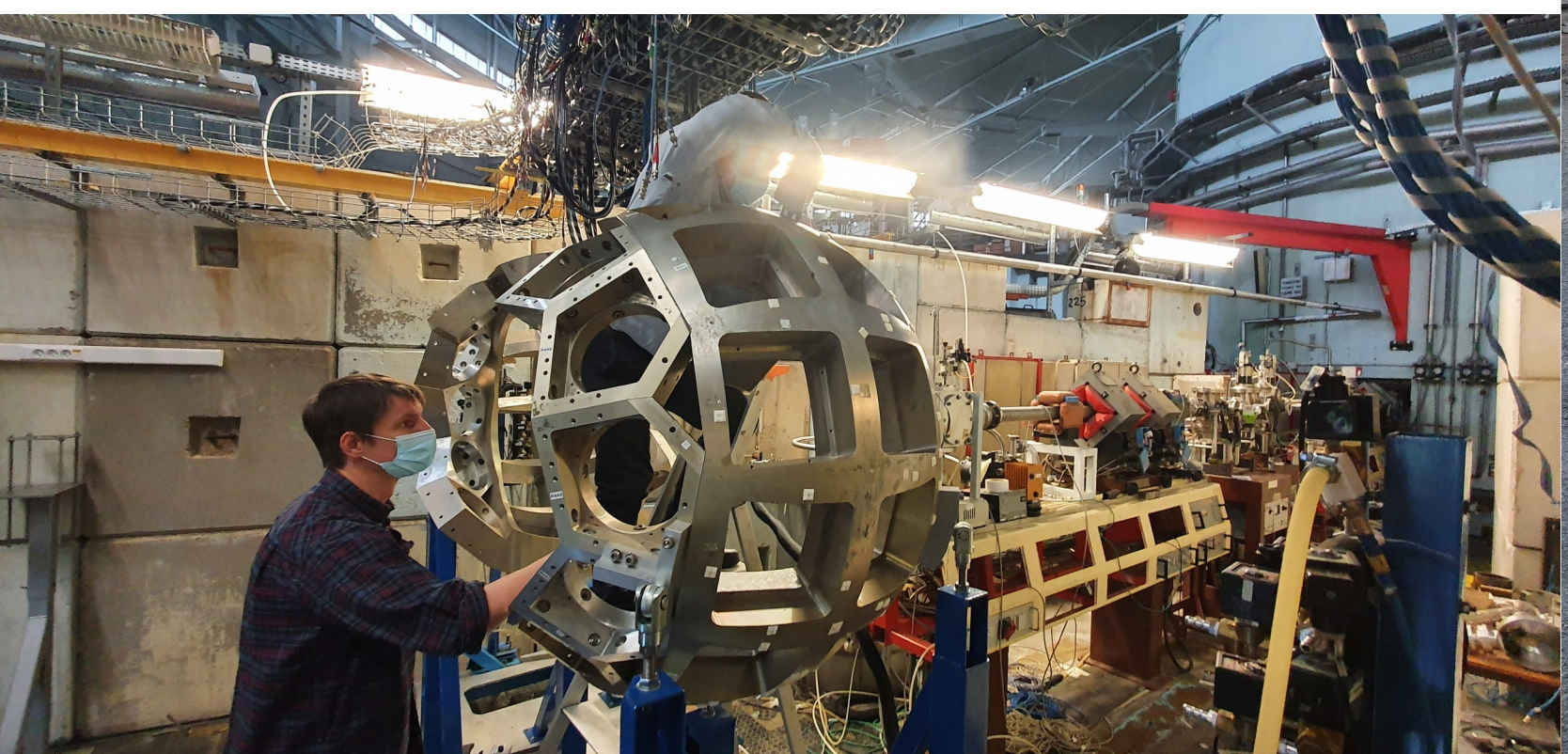
+All the **incredible** team from ALTO: Hakim, Alain, Robert, Elie, Ahmed, Emmanuel, Fabien, Florent, Stéphane, Florian, André, Mario, Lucas

+locals and non locals: Jonathan, Matthieu, Christine, Waeli, Karl, Georgi, Joa, Julien, Iolanda, David Etasse, Corentin, Giorgia, Desislava, Elisa, Nikola, Konstantin + the students from Oslo

Where are the nice pictures?

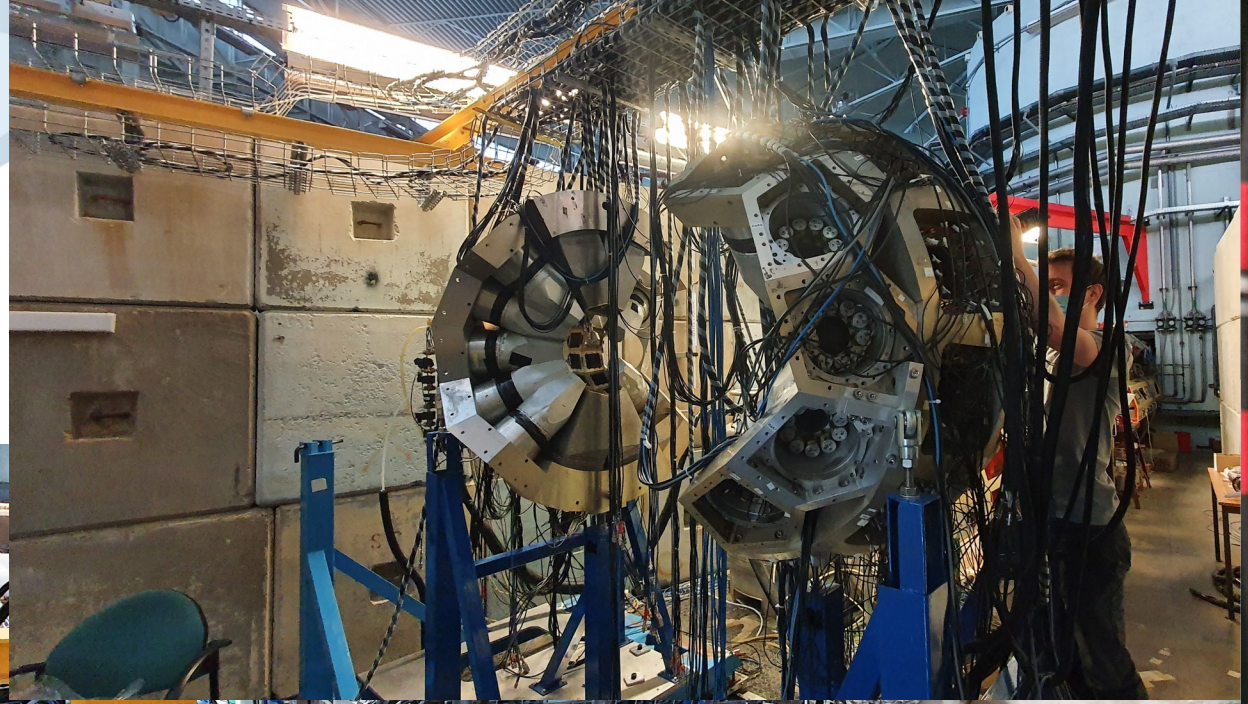
Decembre 7th, 2021, shipment received from JYFL

Testing all the HPGe then mounting the structure and moving the detectors

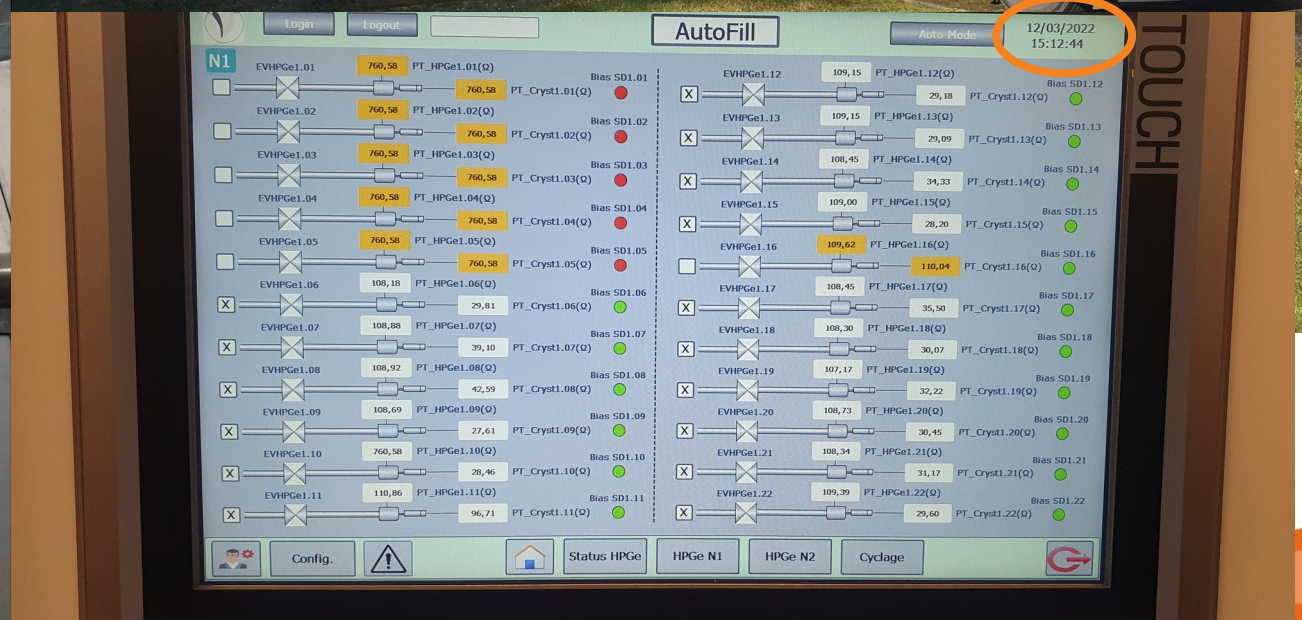


IJCLab
Irène Joliot-Curie
Laboratoire de Physique des 2 Infinis

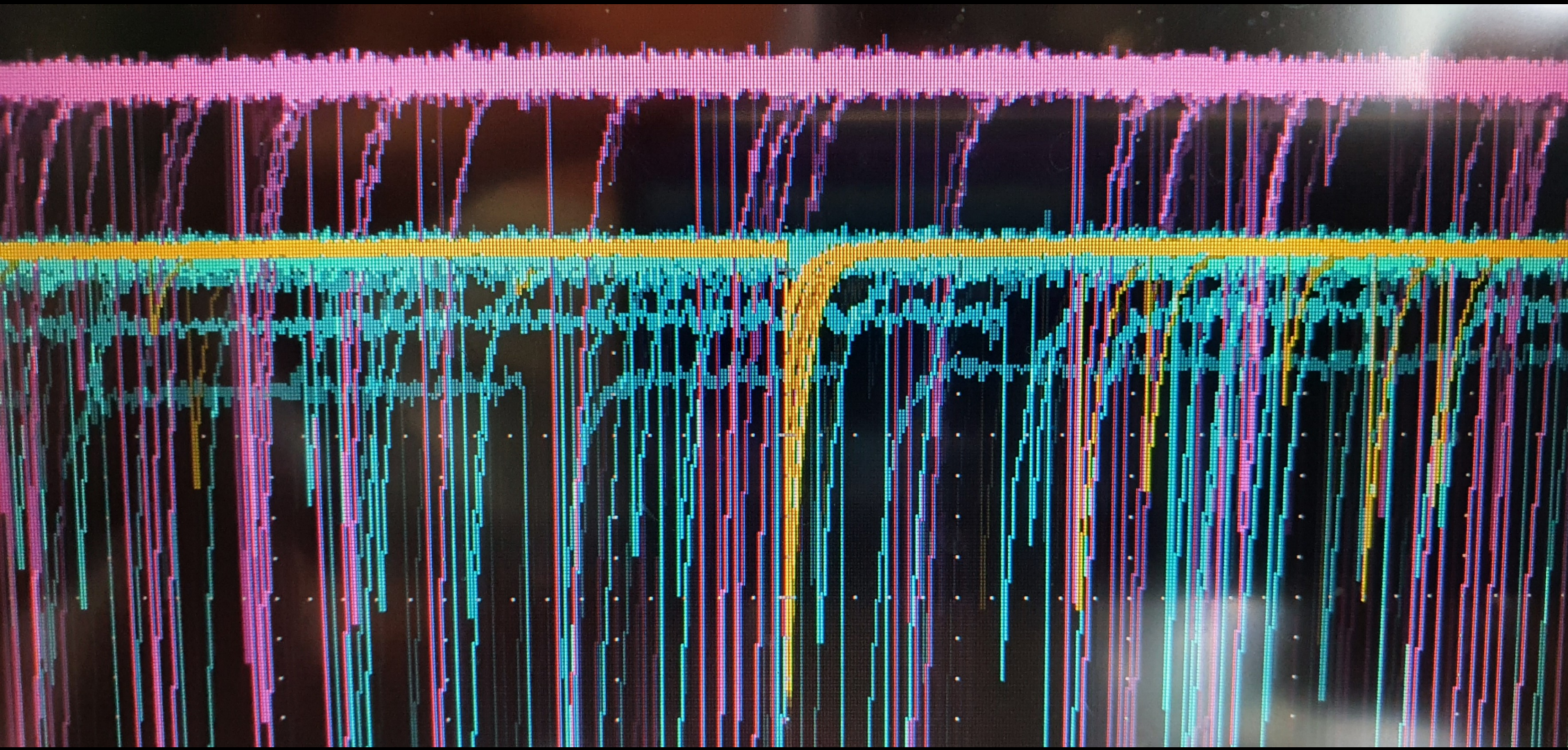
Mounting and connecting the cable



To FASTER



Updated all along the runs



2022 February

Experiments and configuration

Beam	Energy	Target	Configuration	Shifts Ran	Physics
^{7}Li/neutrons	17MeV/2MeV	^{238}U	FATIMA/LICORNE	42	Neutron-rich fission fragments spectroscopy
^{18}O	111 MeV	^{197}Au	Ge only	19	Fusion-fission studies
^{16}O	95 MeV	^{64}Zn	PARIS	20	Shape and structure study
NaN	NaN	^{252}Cf	PARIS	63	Neutron-gamma de-excitation
^{28}Si	143 MeV	^{40}Ca	OPSA/HPGe only	16	Shape evolution in N = Z nuclei
^{24}Mg	110 MeV	^{24}Mg	PARIS/DSSD	21	High spin structures
^{2}H	11 MeV	^{235}U	PARIS/DSSD	21	Fission isomers in uranium
^{58}Fe	220 MeV	^{208}Pb	PARIS/DSSD	10	Enhanced collectivity in ^{58}Fe
^{40}Ca	160 MeV	^{208}Pb	PARIS/DSSD	3	Super-deformed band in ^{40}Ca
^{12}C	87.5 MeV	^{182}W	PARIS/DSSD	12	^{194,196}Hg fission studies
^{2}H	11 MeV	^{232}Th	PARIS/DSSD	15	Fission shape isomer in ^{232}Th
^{62}Ni	220 MeV	^{208}Pb	PARIS/DSSD	7	Coulomb excitation of ^{62}Ni