



Status of the WP2@EUROLABS

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*Nuclear Physics RI meeting
Via Zoom, July 13, 2021*

| Finalization of Access Budget | | | | |
|-------------------------------|------------------|-----------------|-----------------|-----------------|
| NP-RI | Original Request | 1st proposition | Allocated funds | NP-RI |
| LNL/LNS | 717 500 | 585 513 | 585 513 | LNL/LNS |
| GANIL-SPIRAL2 | 962 060 | 769 112 | 769 112 | GANIL-SPIRAL2 |
| ALTO | 384 690 | 298 534 | 298 534 | ALTO |
| GSI-SIS18 | 742 500 | 566 968 | 566 968 | GSI-SIS18 |
| GSI-SuperFRS | 48 750 | 35 136 | 35 136 | GSI-SuperFRS |
| GSI-CRYRING | 18 750 | 16 406 | 16 406 | GSI-CRYRING |
| ISOLDE@CERN | 842 500 | 724 498 | 724 498 | ISOLDE@CERN |
| n-TOF@CERN | 297 400 | 226 385 | 200 000 | n-TOF@CERN |
| JYFL | 712 500 | 557 638 | 557 638 | JYFL |
| NLC-SLCJ | 207 950 | 163 062 | 163 062 | NLC-SLCJ |
| NLC_CCB | 109 075 | 83 597 | 83 597 | NLC_CCB |
| IFIN-HH | 465 000 | 406 875 | 300 000 | IFIN-HH |
| USE Sevilla | 67 400 | 58 975 | 65 000 | USE Sevilla |
| ATOMKI Debrecen | 67 400 | 58 975 | 65 000 | ATOMKI Debrecen |
| U.Oslo | 67 400 | 58 975 | - | |
| U. Lisboa | 67 400 | 58 975 | 65 000 | U. Lisboa |
| HBI-Zagreb | 67 400 | 58 975 | - | |
| ECT* | 340 000 | 279 452 | 279 452 | ECT* |
| | 6 185 675 | 5 008 049 | 4 774 914 | |

225 000 VA „Theory for experiments”
Ca. 1 200 000 Service Improvements

Organization of WP2

WP2 – RI for nuclear physics

Task 2.1 „Stable Beams”

JYFL, LNL-LNS, GANIL, ALTO, NCL-SLCJ, NLC-CCB, IFIN-HH, CLEAR

Task 2.2 „Radioactive Ion-Beams”

ISOLDE, GSI, GANIL, LNL-LNS, JYFL, ALTO

Task 2.3 „Neutrons”

n-TOF, GANIL, ALTO, LNL-LNS, CLEAR (Seville)

Task 2.4 „Theory for experiments”

ECT* + Virtual Access (Krakow/Seville/Milano)

Task 2.5 „Service improvements”

- Streamlined access procedures + Remote access;
- Target development,
- Travelling Detectors,
- Biophysics & Medical Applications,
- Ion Source

IFJ PAN Krakow - Adam Maj

JYFL – Paul Greenlees

ISOLDE – Gerda Neyens

n-TOF – Alberto Mengoni

ECT* - Gert Aarts

GSI – Marco Durante

“Theo4Exp Virtual Access Infrastructure”

Installation 1: [MeanField4Exp](#) (IFJ PAN Krakow)

Installation 2: [Reaction4Exp](#) (Uni. Sevilla)

Installation 3: [Structure4Exp](#) (Uni. Milano)

Coordinator: Manuela Gallardo (Sevilla),

Deputy Coordinators: Jerzy Dudek (Strasbourg/Krakow), Gianluca Colo (Milano)

Theo4Exp distributed virtual infrastructure will provide theoretical tools for the EuroLabs project as well as on the wider experimental nuclear physics community. It is designed as an open access platform, where key computer codes, as well as results of calculations, will be made accessible to the community. The relevant state-of-the-art codes for nuclear physics, which up to now were running on the local computer frames of the various theory groups, will be for the first time installed in an open access platform. Beneficiary groups intend maintaining Theo4Exp as a long-term installation, and they will strive to maintain and update it beyond the scope of the EuroLabs project.

The three installations have a common [International Review Panel \(IRP\)](#) constituted by three scientists from the beneficiary institutions plus three external scientists, and a [Coordination Team \(CT\)](#), constituted by a coordinator and two deputy coordinators, covering the three installations. Selected computer codes will be gradually made interoperable, so that the output of some codes on one installation could be used as an input of the code in another one.

IRP: Piotr Bednarczyk (Krakow) – chair, Krzysztof Rusek (Warsaw), Angela Gargano (Napoli), Enrico Vigezzi (Milano), Antonio Moro (Sevilla), Ian Thompson (Livermore)

EU Request: IFJ PAN Krakow: 90 kEuro, Uni. Sevilla: 90 kEuro, Uni. Milano: 45 kEuro

Task 2.5 „Service improvements” (coord. Marco Durante)

| Subtask nr | Subtask Title | Leading participants | Subtask coordinator | Proposed Budget |
|------------|---|--|--------------------------------|----------------------|
| 2.5.1 | Services for making Targets | Manuela Cavallaro (LNS) Juan Esposito (LNL) | LNL/LNL (tbd) | 275 000 |
| 2.5.2 | Streamlined Access & Remote Access | Paweł Napiorkowski (SLCJ Warsaw) Helena Albers (GSI) | Paweł Napiorkowski (Warsaw) | 135 000 210 000 |
| | | | | |
| 2.5.3 | Biomedical services (FLASH therapy) | Marco Durante (GSI) | Marco Durante (GSI) | 200 000 |
| 2.5.4 | ERIBS (high level ion beam services) | Hannu Kolvisto (JYU) | Hannu Kolvisto (JYU) | 263 000 |
| 2.5.5 | INTRANS (services for optimal employment of travelling gamma detectors) | Araceli Lopez-Martens (IJCLab) Silvia Lenzi (INFN) Magda Górka (GSI) | Magda Górka (GSI) | 160 000 |
| SUM | | | | Ca. 1 243 000 |

WP2 Ris vs. Beneficiaries

| Research Infrastructure | TNA | VA | S1 | S2 | S3 | S4 | S5 | | Beneficiary |
|-------------------------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-------------|-------------------|
| LNL/LNS INFN | € 595 500 | | € 275 000 | € 25 600 | | € 66 250 | € 53 000 | € 1 015 350 | INFN |
| GANIL-SPIRAL2 | € 769 112 | | | | | € 3 750 | | € 772 862 | GANIL-SPIRAL2 |
| ALTO | € 300 000 | | | | | | € 53 000 | € 353 000 | ALTO |
| GSI/FAIR | € 619 875 | | | € 54 583 | € 200 000 | € 3 750 | € 53 000 | € 931 208 | GSI/FAIR |
| ISOLDE CERN | € 724 498 | | | | | | | € 724 498 | CERN |
| n-TOF CERN | € 202 112 | | | | | | | € 202 112 | CERN |
| JYFL | € 557 638 | | | | | € 73 125 | | € 630 763 | JYFL |
| NLC-SLCJ | € 162 500 | | | € 135 000 | | | | € 297 500 | SLCJ Warsaw |
| NLC-CCB | € 85 700 | € 90 000 | | | | | | € 175 700 | IFJ PAN Krakow |
| IFIN-HH | € 299 750 | | | € 21 667 | | | | € 321 417 | IFIN-HH |
| USE Sevilla | € 65 000 | € 90 000 | | | | | | € 155 000 | USE Sevilla |
| ATOMKI Debrecen | € 65 000 | | | | | € 28 125 | | € 93 125 | ATOMKI Debrecen |
| U. Lisboa | € 65 000 | | | | | | | € 65 000 | U. Lisboa |
| ECT* | € 272 000 | | | | | | | € 272 000 | ECT* |
| Milano INFN | € - | € 45 000 | | € 65 824 | | | | € 110 824 | INFN |
| PARTREC Groningen | € - | | | | | € 28 125 | | € 28 125 | PARTREC Groningen |
| IPHC-Strasbourg | € - | | | | | € 60 000 | | € 60 000 | CNRS Strasbourg |
| | | | | | | | | | |
| sum | € 4 783 684 | € 225 000 | € 275 000 | € 302 674 | € 200 000 | € 263 125 | € 159 000 | € 6 208 483 | |

Objectives

For work packages focusing on trans-national and/or virtual access provision, the information to be provided here must be structured as follows:

Provision of access to the following infrastructure(s):

ALTO, CLEAR, GANIL, GSI, IFIN-HH, ISOLDE, JYFL, LNL-LNS, NLC (SLCJ Warsaw & CCB Krakow), n-TOF, ECT*, Theo4Exp VA

Description of the infrastructure(s)

Name of the infrastructure (and its installations, if applicable):

ALTO – Accélérateur Lineaire et Tandem a Orsay

Location (town, country) of the infrastructure: IJCLab, Orsay, France

Web site address: <https://www.ijclab.in2p3.fr/en/platforms/alto/>

Annual operating costs (excl. investment costs) of the infrastructure (€): 1.55 M€

Description of the infrastructure:

The ALTO facility consists of two accelerators, Tandem accelerator for stable beams (ions and cluster beams for interdisciplinary physics) and a linear electron accelerator for the production of radioactive beams.

The Orsay Tandem Van de Graaff accelerator (15 MV) is usually operated up to 14.6 MV. Stable ion beams ranging from protons to gold can be delivered. “Cluster-beams” and micro-droplets can also be delivered

Services currently offered by the infrastructure: The Detector Laboratory is among the most advanced in Europe for testing and repairing HPGe detectors and is used by several European Laboratories (<http://ipnweb.in2p3.fr/GePool/>); the Target Laboratory produces thin films for targets; Experimental Hall services provide the technical assistance for new installation and maintenance. Computer centres (CC IN2P3/Lyon) and Data-Acquisition services provide help with hardware and data-acquisition software. A Laser laboratory is available to test new ionisation schemes for the production of radioactive ion beams. ALTO has a long tradition to work with different research communities: nuclear, atomic, solid-state and

Name of the infrastructure (and its installations, if applicable):

GANIL - Grand Accélérateur National d'Ions Lourds

Location (town, country) of the infrastructure: Caen (France)

Web site address: <https://www.ganil-spiral2.eu>

Annual operating costs (excl. investment costs) of the infrastructure (€): 11 M€ (GANIL without manpower), 29 M€ (including manpower)

Description of the infrastructure:

GANIL-SPIRAL2 is one of the major nuclear physics facilities in the world with SPIRAL2 selected at the ESFRI list. The accelerator complex delivers four different beams for users:

.... And so for all 12 RIs

Description of work (where appropriate, broken down into tasks), lead partner and role of participants

Common description for each task 1-5 by coordinators (tbd)

Common modalities

Common support offered

Common Outreach to new users

Definition of different PACs for each RI

Deliverables

4 deliverables in a form of Reports: Task1, 2, 3 and 4 (month 46)

5 deliverables (reports) from each service improvement subtask (month 36)

Common Final Report of WP2 (month 48)

Milestones?

Associated labs?

JINR Dubna, RIKEN, FRIB

PARTREC?

UNI Dresden?