**Template TA**

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| --- | --- | --- | --- |
| **Work package number** | WP7 | **Start date** | 01/06/2019 |
| **Activity Type** | Transnational Access |
| **Work package acronym** | TA5-GSI |
| **Work package title** | Transnational Access to GSI |
| **Lead beneficiary** | 8 - GSI |

# Publicity concerning the new opportunities for access

The opportunities for support offered to users of the accelerator and experimental facilities, are published on the following website:

<https://www.gsi.de/en/work/organisation/scientific_boards/user/funding/strong.htm>

Apart from general information about GSI, the website contains information about available research capabilities, access procedures and beam time scheduling. Transnational Access to GSI within the context of STRONG 2020 is introduced and the funding opportunities are described. Additionally, the support for users which is offered by the Welcome Office of GSI: technical and logistic support such as access to the computing infrastructure and the laboratories of GSI, accommodation, housing, health and liability insurances.

The form to apply for Transnational Access is provided at the STRONG 2020 website as well as the access to the user registration and to the statement of travel costs.

Calls for applications are published on the website, mails have been distributed to the user groups working on Strong-2020 topics and information on the opportunities have been distributed during collaboration meetings. The possibility of direct payment of GSI’s guest houses for STRONG 2020 users was introduced in order to facilitate the travel cost reimbursement process.

# Selection procedure

## 2.1 Organization of the Users Selection Panel (USP)

GSI is open to national and international user groups. To apply for the access to the accelerator and experimental facilities, a written project proposal has to be submitted to the GSI scientific director. The proposals are reviewed by an international panel of experts, which is the GSI General Program Advisory Committee (G-PAC).

The call for proposals the experimental campaigns in 2023/24 was opened April, 25th, 2022 and the G-PAC meeting took place September 22nd-23rd , 2022. Close to 1,800 participants from 45 countries submitted 124 proposals. Out of the proposals selected by the G-PAC for beam time allocation have been 4 with direct connection to hadron and dense nuclear matter physics.

If a user group in addition applies for EC support under the Integrated Infrastructure Initiative STRONG 2020, a separate funding application has to be submitted to the coordinator of the activity. These applications are evaluated by a User Selection Panel which consists out of members of the G-PAC and selected scientists of the field and – ex officio - the GSI research director. Only applications, which are approved by the G-PAC and are scheduled for experiments will be chosen. Once, the duration and date of the experiments are fixed, applications for access funding are evaluated. The applications are either sent to the Users Selection Panel for evaluation by mail or, as an exception, they are discussed in a face to face meeting.

## 2.2 Selection criteria

GSI is participating in several EC funded projects in which transnational access is offered. Therefore, the first selection criterion is the scientific topic, which is pursued by the user group. For STRONG-2020 only user groups planning research on the field of hadron and heavy ion reaction physics are eligible.

If the proposals have been suggested for beam time allocation by the G-PAC, the User Selection Panel decides about the funding of the user group. The groups are evaluated according to different aspects. One aspect is the number of scientist supporting personnel from countries, where funding for fundamental research is limited. Another aspect is whether the group has been newly formed and does experiments at GSI for the first time or members of the user group are coming from institutions, which are taking part in GSI experiments for the first time. During the 3rd reporting period only experienced user group applied for funding.

Most of the collaborations working on STRONG 2020 topics and performing experiments at GSI are rather large. Special emphasis is put on the funding of early career scientists, in order to allow postdocs, master and doctoral students to participate in experiments at GSI. Several early career researchers stayed for rather long times (> 1 month) for the preparation of the beam time, such that they gained valuable experimental experience, and strengthened the position of their group within the collaboration.

## 2.3 Users Selection Panel members

Since the proposals have been scientifically evaluated by the program advisory committee already, the user selection panel USP only decides on the funding of the user groups. Therefore, the USP is rather small and scientists with experimental experience at GSI or other large facilities have been selected to serve in the USP. Current members of the user selection panel are:

* Prof. Dr. Philippe Crochet, LPC-Clermont Ferrand (expert for heavy ion reactions, member of the ALICE collaboration with no connections to any of the experimental groups, former post doc at GSI and member of the G-PAC)
* Prof. Dr. Jana Bielcikova, Nuclear Physics Institute, Czech Academy of Science (expert for heavy ion reactions, member of G-PAC, member of the STAR collaboration at RHIC, during her doctoral studies she did experiments at GSI)
* Prof. Dr. Kai Brinkmann, University of Giessen, (expert in hadron physics and detector technology, member of the PANDA collaboration; he did experiments at the linear accelerator of GSI)
* Prof. Dr. Karlheinz Langanke, GSI (research director, expert in theoretical nuclear astrophysics; member of the user selection panel by virtue of office, chair)

The USP is constituted out of members, which have done experiments at GSI or are situated at GSI, but are not directly involved in ongoing experiments. Chair of the USP is the research director of GSI, since most of the communication and the decision processes will be realized via mail or video meetings and, therefore, will be organized by GSI. However, due to the envisaged of the project and sufficient budget there was no decision process necessary during this reporting period, and the applications have been granted without essential cuts.

## 2.4 Users Selection Panel meetings

Thus, only an informal User selection panel meetings took place in July 2023 via E-Mail circulation

#  3. Transnational Access activity during the reporting period

GSI, together with national and international partner institutions, has started in 2016 the construction of a new large accelerator and research complex: The Facility for Antiproton and Ion Research (FAIR). Those activities require major human and financial resources, what has consequences for the availability of beam time until the start of the commissioning of the FAIR accelerators. In order to enable beam time during the construction of FAIR, GSI launched the FAIR Phase-0 program. The FAIR Phase-0 program started 2018/19 made commissioning and testing of the upgraded GSI accelerators along with early physics experiments using the upgraded GSI accelerators and novel FAIR instrumentation possible. Approximately three months of beam time per year are available to the scientific community until FAIR is operational.

## 3.1 Detailed description of the activity

In 2022, the beamtime was successfully concluded with an uptime of the accelerator facility of 88 % of the scheduled hours. The availability for the users was 75 % with beam on target. These values are within the typical range of the last years and confirm the stable operation conditions of the GSI facilities Major shutdown activities of the accelerator during 2022 were: Renovation of the ventilation system of the UNILAC RF power stations and the refurbishment of the medium voltage switchgear stations. In order to reach the intensities of highly charged U28+ needed for FAIR operation two major upgrades are underway: a) the replacement of the nitrogen pulsed gas stripper by hydrogen pulsed gas stripper, to enhance the efficiency of production of the 28+ charge state of uranium and b) the replacement of the Alvarez drift tubes. The new drift tubes will be housed in novel tanks of close to 2 m diameter. For the latter the Galvanic workshop of GSI was refurbished. All large components of the novel accelerator will be copper plated in house.

In 2023, only an engineering took place in December. Major achievements relevant for the STRONG-2020 experiments are: The uranium 28+ beam, was set-up and an intensity of up to 42.7 billion ions was measured at the end of the GSI accelerator chain, downstream of the SIS18 ring. New best GSI values were reached for carbon (35 billion ions / cycle) and nitrogen (68 billion ions / cycle) behind SIS18 and for nitrogen up to the pion target. This achievement is important for future pion runs at HADES, in particular. Two different methods for optimization of the micro-spill and macro-spill structures were tested, a spill smoothing cavity in the SIS18 and a feedback system working with KO extraction. Both produced impressive improvements and nearly doubled the duty cycle of the HADES run in 2024.

The next experimental beam time took place in 2024. Three scheduled experiments in the framework of STRONG-2020 were performed. The HADES experiment on heavy-ion collisions could not be completed due to a failure of the cooling-system of the super-conducting magnet.

**S522/COR (beam time 2022):** Short Range Correlations (SRC) are two-body components of the nuclear wave function with high relative momentum and low center of mass (c.m.) momentum with respect to the Fermi momentum kF ~ 250 MeV/c. The goal of this project is to provide new precise data on the isospin content of SRC as a function of N/Z asymmetry and intrinsic momentum by performing measurements in inverse kinematics, where radioactive carbon ions (up to 16C) can be used as the beam. Hence, the key element of the set-up is a liquid hydrogen target, which has been designed and constructed by members of the user group. This liquid target was integrated into the R3B set-up.

Main achievements: Several issues due to the novelty of this type of measurement were encountered. The beam energy and intensity were higher than for standard R3B experiments, and the FOOT vertex tracking system has been used for the first. Nevertheless, data taking was completed successfully and data analysis has been started with the development of the appropriate analysis tools.

**HAD/TLU (beam time 2022):** HADES is a set-up to detect lepton pairs originating from decays of mesonic and baryonic resonances produced in heavy ion collisions or elementary reactions. In order to enhance the physics performance for investigation of exclusive decay channels in pp reactions, tracking and time-of-flight detectors have been installed in the forward acceptance region. The user group was responsible for parts of the upgrade of the HADES set-up and for the commissioning of all sub-detectors, in particular, the newly setup, and successful operation of the full system during a full one-month beam time. The scientific goal of this project addresses the following topics (S518): (1) Hyperon electromagnetic decays (2) Hyperon hadronic decays. (3) Production of double strangeness and hidden strangeness. (4) Inclusive hadron and di-electron production as a reference for p+A and heavy-ion data.

Main achievements:

* Forward tracker installation based on PANDA technology: Two new Straw Tracking Stations (STS1, STS2) were installed together with new RPC based time-of-flight detector to detect particles emitted at low polar angles.
* Construction, installation and software development of a novel T0 detector based on LGAD sensors: The experiment required time-of-flight measurement for beam particles with intensities of 108 particles/s. Modern LGAD technology was used, highly segmented strip sensors were produced and a dedicated readout system was designed. The full system has been tested at various facilities. A software package for calibration was developed and applied.
* Upgrade of HADES MDC gas subsystem: The upgrade of current MDC gas subsystem was also accomplished. This involved the optimization of the gas distribution by improving the mixing system with the possibility of adding water individually in each of the 6 sectors. Individually selecting the amount of water vapor enhanced the stability of the wire chambers and increased the efficiency of the entire system.
* DAQ, analysis and database software development, detector control: All mentioned items were updated, and complemented with parts dealing with new sub-detectors.

Highlights: Two new Straw Tracking Stations (STS1, STS2) using the technology of the PANDA-STT/FT detector systems, together with the new forward RPC time-of-flight detector, were installed at HADES in order to extend the single-track acceptance to low polar angles (Θ<7°) and thereby increase the acceptance by a factor two for hyperon reconstruction. In a four-week HADES beam time with 4.5 GeV protons impinging on a proton target, these detectors were operated with highest detection efficiency and high spatial resolution. That beam time produced a rich sample of experimental data for a wide range of reaction channels and the data analyses include studies of the pnπ+, pKΛ, pK0SΛπ+, and ppK+K- final states and also proton-proton elastic scattering for cross section normalization.

A modern T0 detector based on LGAD technology developed and successfully utilized in this experiment has been used also in other fields, beam diagnostics and medical applications. It demonstrates an excellent synergies and very efficient usage of the resources.

**MCBM/ZAB:** The Compressed Baryonic Matter experiment (CBM) at FAIR is designed to measure nucleus-nucleus collisions at unprecedented interaction rates of up to 10 MHz, which will allow study of extremely rare probes with high precision. To achieve this high rate capability, CBM will be equipped with fast and radiation-tolerant detector systems, readout by a free-streaming data acquisition system, transporting data with a bandwidth of up to 1 TB/s to a large scale computer farm for event reconstruction and first level event selection. mCBM comprises prototypes and pre-series productions of all CBM detector systems with their read-out electronics, transporting synchronized data streams into the Green IT Cube of GSI/FAIR. To further validate CBM’s read-out and data processing concept, the production yield of rare Λ baryons is studied in nucleus-nucleus collisions serving as a benchmark observable, which will allow comparison with published data

Main achievements: For the beam campaign 2021, the mCBM DAQ system was upgraded to the final CBM configuration. DAQ hardware as well as firm- and software were continuously tested and optimized since 2021. Detailed high-rate studies were carried out for all detector systems, in particular rate scans and ageing studies under extreme conditions for the Time-Of-Flight (TOF) and the MUon CHamber (MUCH) system, using 238U (March’22) and 197Au beam (June’22 and March’24) beam with collision rates up to 10 MHz (and beyond). And finally, benchmark runs, dedicated for the reconstruction of rare Λ baryons, were taken in Ni+Ni collisions at 1.93 AGeV (May’22) and in Au+Au collisions at 1.23 AGeV (June’22) as well as in Ni+Ni collisions at three kinetic projectile energies of 1.23, 1.58 and 1.93 AGeV in May’24. While the development of the CBM data analysis chain is ongoing, Λ baryons were successfully reconstructed in Ni+Ni collisions at 1.93 AGeV, taken in 2022. An essential step towards the CBM experiment was made by developing a first prototype of the CBM on online reconstruction and selection system, which could be tested within the mCBM 2024 campaign.

Difficulties encountered: Due to pandemic restrictions in the years 2020 and 2021, the DAQ/data transport was upgraded and operated remotely, controlled by VNCs while the communication was granted by permanent Zoom sessions. During preparation (dry) runs or during data taking, the mCBM experiment could thus be operated properly with a small 4 to 6 persons’ team on-site and about 20 experts word-wide connected remotely.

Highlights representing essential steps towards the CBM experiment at FAIR:

* Development, test and optimization of a free-streaming DAQ and data transport system for CBM, based on a Common Readout Interface board: a stable synchronization of all individual detector data streams were observed and tested under realistic experiment conditions.
* Successful high-rate and ageing studies of CBM detector systems, up to the highest collision rates.
* Reconstruction of rare Λ baryons with mCBM in Ni+Ni collisions at 1.93 AGeV, involving the complete CBM data chain.
* Development and test of the CBM online system for real-time reconstruction and selection.

**G00022/TLU:** The project goals are the preparation and realization of the HADES experiment on “Searching for critical behavior and limitations of the universal Freeze-out line” (G-22-00022). A gold beam in the kinetic energy range 0.2-0.8 A GeV is employed to investigate Au+Au collisions with the aim to study baryonic matter in the proximity of the nuclear liquid-gas phase transition.

Main achievements:

* Completion of full electromagnetic calorimeter: In 2022, the last sector was installed, and during 2023 was fully commissioned. The comprehensive maintenance of the entire detector and the precise gain settings of the photomultiplier tubes (PMTs) were achieved using cosmic muon measurements.
* Upgrade of the HADES Forward Wall time-of-flight subsystem: A new HV system, powered by the CAEN A7435N high voltage supply housed in CAEN SY4257 crates, was connected to the photomultiplier tubes (PMTs) using SHV cables and CAEN R647 distribution modules. To set the gain of the PMTs accurately, cosmic muons were used. During beamtime, regular quality assurance (QA) checks were performed to monitor the HV system's performance.

Highlights: During the beamtime in February-March 2024, the fully operational ECAL was employed to study particle production in carbon-carbon (C+C) and gold-gold (Au+Au) collisions at 800 A MeV. The C beam, with an intensity of 1x106/sec, and the Au beam, with an intensity of 2.7x106/sec, were impinging on segmented targets. The quality of measured data was controlled during the beamtime via online analytical plots i.e. time over threshold vs cell number, multiplicity vs sector or event rate monitor. Preliminary results include the successful reconstruction of the π0 mass peak from its double gamma decay with an expected resolution of 15 MeV/c², demonstrating the detector's high performance and accuracy.

**G00122/RUS:** Objective of the project is to measure the density dependence of the symmetry energy of the nuclear equation of state at densities above the saturation one. This will be achieved by comparing the neutron-to-proton elliptic flow ratio, as experimentally measured in semi peripheral Au+Au collisions at beam energy of 250, 400 and 800 AMeV (S122/ASY-EOS II experiment), to transport model calculations. The obtained results will complete the ones obtained by multi-messenger astronomy studies (binary neutron stars merger and X-ray neutron star satellite-based observations).

Main achievements: During an extended commissioning run in 2024, the detectors that will be used in the main data taking, foreseen in 2025, have been commissioned and successfully tested. In particular the March 2024 test-beam has allowed to commission the new KRAB detector which was constructed for measuring the collision centrality and reaction plane orientation. The DAQ coupling among the different devices needed (CHIMERA from LNS Catania, KRAB from Warsaw, and the R3B detectors, ToFD, LOS, ROLU, and NeuLAND) have been established and verified.

Highlight: Extended data analysis of the previous experiment (S394/ASY-EOS I experiment) has proven the importance and effectiveness of heavy-ion collision to complete/interpret the high-density symmetry energy constraints from multi-messenger astronomy.

***Table 3.1 Access to the facility during the reporting period supported by the project***

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| **Project No.** | **User-project acronym** | **Number of users** | **Number of man/days spentat the infrastructure** |
| 1 | S522/COR | 13 | 308 |
| 2 | HAD/TLU | 22 | 421 |
| 3 | G00022/TLU | 24 | 541 |
| 4 | mCBM/ZAB | 14 | 126 |
| 5 | G0122/RUS | 11 | 127 |

## 3.2 Scientific output of the transnational access activity in the reporting period

No user meeting too place.

 ***Table 3.2 List of user meetings***

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| --- | --- | --- | --- | --- |
| **User-project acronym** | **Date** | **Venue** | **Number of users** | **Overall number of attendees** |
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# 4. Tables to be filled in the IT tool in Part A of the Periodic Report

***4.1 Researchers who have trans-national access to research infrastructures through Union support***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Researcher** | **Employing Organisation Home Institution** | **User project acronym** | **Activity domain** |  |  |  |
| **Name** | **Gen- der** | **Nationality** | **Home Institution** | **Legal status** | **Country** | **Infra- structure Short Name** | **Installation ID** | **Installation Short Name** |
| Alberto Blanco Castro | M | ES | LIP, Laboratorio de Instrumentacao e Fisica Experimental de Particulas, Coimbra | RES | PT | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Izabela Ciepal | F | PL | Institute of Nuclear Physics PAN, Krakow | RES | PL | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Petr Chudoba | M | CZ | Nuclear Physics Institute of the Czech Academy of Sciences, Rez | RES | CZ | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Pavel Kohout | M | CZ | Palacky University Olomouc, Olomouc | UNI | CZ | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Jedrzey Kolas | M | PL | Warsaw University of Technology, Warsaw | UNI | PL | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Jan Kollarczyk | M | CZ | Nuclear Physics Institute of the Czech Academy of Sciences, v.v.i., Rez | RES | CZ | G00022/TLU | Engineering & Technology | GSI | 1 | SIS18 |
| Lubos Krupa | M | SK | Palacky University Olomouc, Olomouk | UNI | CZ | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Dachi Okropiridze | M | OT | Ruhr-Universitätt Bochum, Bochum | UNI | DE | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Antonin Opichal | M | CZ | Nuclear Physics Institute of the CAS, Husinec-Rez | RES | CZ | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Jan Orlinski | M | PL | Faculty of Physics, University of Warsaw, Warsaw | UNI | PL | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Agata Otreba | F | PL | University of Warsaw, Faculty of Physics, Warsaw | UNI | PL | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Krzysztof Piasecki | M | PL | University of Warsaw, Faculty of Physics, Warsaw | UNI | PL | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Piotr Piotrowski | M | PL | University of Warsaw, Faculty of Physics, Warsaw | UNI | PL | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Aleksandra Podwysocka | F | PL | University of Physics, Faculty of Physics, Warsaw | UNI | PL | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Marcel Polkosnik | M | PL | University of Warsaw, Warsaw | UNI | PL | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Michal Predota | M | PL | Warsaw University of Technology, Faculty of Physics, Warsaw | UNI | PL | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Beatrice Ramstein | F | FR | Laboratoire de Physique des deux infinis Ir¿¿ne Joliot-Curie (IJCLab), Orsay | RES | FR | G00022/TLU | Physics | GSI | 1 | SIS18 |
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| Adam Strach | M | PL | Jagiellonian University, Krakow | UNI | PL | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Pavel Tlusty | M | CZ | Nuclear Physics Institute CAS, Rez | RES | CZ | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Szymon Trelinski | M | PL | Henryk Niewodniczanski Institute of Nuclear Physics (IFJ), Krakow | RES | PL | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Luis Alberto Vieira Lopes | M | PT | Laboratorio de Instrumentacao e Fisica Experimental de Particulas, Coimbra | PRV | PT | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Vladimir Wagner | M | CZ | Nuclear Physics Institute of CAS, Rez | RES | CZ | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Hanna Zbroszczyk | F | PL | Warsaw University of Technology, Warsaw | UNI | PL | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Joerg Aichelin | M | DE | Subatech/Nantes, Nantes | UNI | FR | G00122/RUS | Physics | GSI | 1 | SIS18 |
| Maria Colonna | F | IT | INFN-Laboratori Nazionali del Sud, Catania | RES | IT | G00122/RUS | Physics | GSI | 1 | SIS18 |
| Enrico De Filippo | M | IT | INFN - Sezione di Catania, Catania | RES | IT | G00122/RUS | Physics | GSI | 1 | SIS18 |
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| Cristina Zagami | F | IT | INFN - Laboratori Nazionali del Sud, Catania | RES | IT | G00122/RUS | Physics | GSI | 1 | SIS18 |
| Rayane Abou Yassine | F | OT | IJCLab, Orsay | UNI | FR | HAD/TLU | Physics | GSI | 1 | SIS18 |
| Alberto Blanco Castro | M | ES | LIP, Laboratorio de Instrumentacao e Fisica Experimental de Particulas, Coimbra | RES | PT | G00022/TLU | Physics | GSI | 1 | SIS18 |
| Malin Bohman | F | SE | Uppsala University, Uppsala | UNI | SE | HAD/TLU | Engineering & Technology | GSI | 1 | SIS18 |
| Lukas Chlad | M | CZ | Nuclear Physics Institute of the CAS, Husinec - Rez | RES | CZ | HAD/TLU | Physics | GSI | 1 | SIS18 |
| Petr Chudoba | M | CZ | Nuclear Physics Institute of the Czech Academy of Sciences, Rez | RES | CZ | G00022/TLU | Physics | GSI | 1 | SIS18 |
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| Jan Kollarczyk | M | CZ | Nuclear Physics Institute of the Czech Acasemy of Sciences, v.v.i., Rez | RES | CZ | HAD/TLU | Engineering & Technology | GSI | 1 | SIS18 |
| Luis Lopes | M | PT | LIP Coimbra, Coimbra | RES | PT | HAD/TLU | Physics | GSI | 1 | SIS18 |
| Antonin Opichal | M | CZ | Nuclear Physics Institute of the CAS, Husinec-Rez | RES | CZ | HAD/TLU | Physics | GSI | 1 | SIS18 |
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| Hang Qi | F | OT | Massachusetts Institute of Technology, Cambridge | UNI | OT | HAD/TLU | Physics | GSI | 1 | SIS18 |
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| Maciej Czarnynoga | M | PL | Warsaw University of Technology, Warsaw | UNI | PL | MCBM/ZAB | Physics | GSI | 1 | SIS18 |
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| Monika Kutyla | F | PL | Warsaw University of Technology, Warsaw | UNI | PL | MCBM/ZAB | Engineering & Technology | GSI | 1 | SIS18 |
| Diana Pawlowska-Szymanska | F | PL | Warsaw University of Technology, Warsaw | UNI | PL | MCBM/ZAB | Physics | GSI | 1 | SIS18 |
| Krystian Roslon | M | PL | Warsaw University of Technology, Warsaw | UNI | PL | MCBM/ZAB | Physics | GSI | 1 | SIS18 |
| Daniel Wielanek | M | PL | Warsaw University of Technology, Faculty of Physics, Warsaw | UNI | PL | MCBM/ZAB | Physics | GSI | 1 | SIS18 |
| Hanna Zbroszczyk | F | PL | Warsaw University of Technology, Warsaw | UNI | PL | MCBM/ZAB | Physics | GSI | 1 | SIS18 |
| Alberto Blanco Castro | M | ES | LIP, Laboratorio de Instrumentacao e Fisica Experimental de Particulas, Coimbra | PRV | PT | S522/COR | Physics | GSI | 1 | SIS18 |
| Martina Feijoo | F | ES | University of Santiago de Compostela, Santiago de Compostela | UNI | ES | S522/COR | Physics | GSI | 1 | SIS18 |
| Daniel Galaviz Redondo | M | ES | LIP, Laboratorio de Instrumentacao e Fisica Experimental de Particulas, Lisbon | RES | PT | S522/COR | Physics | GSI | 1 | SIS18 |
| Gabriel Garcia | M | ES | University Of Santiago de Compostela, Santiago de Compostela | UNI | ES | S522/COR | Physics | GSI | 1 | SIS18 |
| Antia Grana Gonzalez | F | ES | University of Santiago de Compostela, Santiago de Compostela | UNI | ES | S522/COR | Physics | GSI | 1 | SIS18 |
| Nasser Kalantar-Nayestanaki | M | NL | Univ. of Groningen, Groningen | UNI | NL | S522/COR | Physics | GSI | 1 | SIS18 |
| Kei Kokubun | M | OT | The University of Tokyo, Tokyo | UNI | OT | S522/COR | Physics | GSI | 1 | SIS18 |
| SILVIA MURILLO MORALES | F | OT | University of York, York | UNI | GB | S522/COR | Physics | GSI | 1 | SIS18 |
| Jose Luis Rodriguez Sanchez | M | ES | University of Santiago de Compostela, Santiago de Compostela | UNI | ES | S522/COR | Physics | GSI | 1 | SIS18 |
| Alexandra-Ionela Stefanescu | F | RO | Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering (IFIN-HH), Magurele | RES | RO | S522/COR | Physics | GSI | 1 | SIS18 |
| Ionut Catalin Stefanescu | M | RO | Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering, Magurele | RES | RO | S522/COR | Physics | GSI | 1 | SIS18 |
| Aaron Stott | M | GB | University of York, York | UNI | GB | S522/COR | Physics | GSI | 1 | SIS18 |
| Ryo Taniuchi | M | OT | University of York, York | UNI | GB | S522/COR | Physics | GSI | 1 | SIS18 |

***4.2 Research infrastructures made accessible to all researchers in Europe and beyond through EU support and summary of trans-national access provision per installation per reporting period (RP)***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Participant number**  | **Organisation short name**  | **Short name of infrastructure**  | **Installation**  | **Unit of access**  | **Min. quantity of access to be provided in Annex I (A)**  | **Access provided in RP3**  |
| **Number** | **Short name** |
| 8 | GSI | GSI | 1 | SIS18 | Beam hours | 1450 | 969 |