

FP7 – RESEARCH INFRASTRUCTURE FOR NUCLEAR PHYSICS
European Nuclear Science and Applications Research (ENSAR)
Transnational Access to ISOLDE
Grant agreement no: 262010

3.2 TRANSNATIONAL ACCESS TO CERN-ISOLDE

3.2.1 PUBLICITY CONCERNING THE OPPORTUNITIES FOR ACCESS UNDER THE GRANT AGREEMENT

The measures taken to publicise the opportunities for access are:

- a dedicated web site: <https://isolde.web.cern.ch/>
On the web site it is described:
 - Who can apply
 - How to apply
 - Call for Proposals
 - Financial Support
 - Application Form
 - Structure and Services of the research infrastructure
- group leaders of scheduled projects are informed via email
- the user community is informed at the annual user meeting
- international workshops/conferences are used to inform a wider scientific community

3.2.2 SELECTION PROCEDURE

3.2.2.1 Users Selection Panel

ISOLDE is open to international user groups. A written proposal has to be submitted to apply for access to the experimental facilities. Proposals are reviewed by an international Program Advisory Committee (PAC): the ISOLDE Neutron Time-of-Flight Committee (INTC). After open-session oral presentations by the proponents the INTC evaluates the proposal and presents recommendations to the CERN Research Board which decides whether to approve or reject the proposal.

The INTC presently has 11 members from external institutes or universities. These members are experts in topics related to the physics activities of the facilities (nuclear structure physics, weak interactions, nuclear astrophysics, solid state physics, life sciences). There are also 12 ex-officio members from CERN in the INTC. The CERN research board has 18 members.

After the approval of an experiment the user group can apply for funding from the transnational access program. A specific users selection panel reviews the applications and decides on the subsistence person-days that can be allocated to the experiment in question.

All users have access to the decisions of the INTC via the CERN website. In case a proposal is rejected the proponents are informed about the scientific/technical or other reasons for not

accepting the proposal (e.g. eligibility). Proponents may after considering the comments by the committee submit revised proposals.

Please find in Annex 1 (Database) the list of the Selection Panel members for the reporting period.

3.2.2.2 Selection Panel meetings

In 2012 there were three meetings held at CERN: 20/03/2012, 16/05/2012 and 26/07/2012

3.2.2.3 Selection criteria

The Users Selection Panel bases its selection on scientific merit, following the prescriptions of Annex III of the contract, Article III.3.6.

3.2.3 TRANSNATIONAL ACCESS ACTIVITY DURING THE REPORTING PERIOD

During the 2nd reporting period from March 2012 to August 2013 a total of 47 projects were supported. A total of 3328 beams hours were delivered; 176 individual users were paid a total of 1007 subsistence days while at ISOLDE. While the majority of users come from the field of physics, the fields of chemistry and biology are also represented.

Three projects either did not receive the scheduled beam or the beam received was considered as test beam and will be rescheduled at a later date.

Please find in Annex 2 (Database) the list of user-projects for which costs has been incurred in the reporting period.

Please find in Annex 3 (Database) the list of users in the reporting period.

3.2.4 SCIENTIFIC OUTPUT OF THE USERS AT THE FACILITY

Please find in Annex 4 the list of publications that have appeared in peer-reviewed journals during the reporting period (or peer-reviewed conference proceedings) and resulting from work carried out under the TNA activity. The current program started in September 2010. Publications from experiments taking place during this reporting period are thus under preparation. Keeping in mind the time scale of experiments of the kind performed at the facility one may expect that data analysis and publication of the results require typically one to two years.

Below are highlights of important results from the user-projects supported under the grant agreement during the 2nd reporting period:

The ISOLDE experimental campaign 2012, which closed in December, was very successful. 51 experiments and as many as 10 test runs were scheduled, of which a large majority collected very good data using dozens of different beams. An exceptional number of new groups and new setups performed successful studies at ISOLDE. To these belonged the groups from Bucharest, Edinburgh, and Warsaw, with respectively their setup for gamma and beta decay (used to study the decay of ^{34}Mg), optical time-projection chamber

(decay of ^6He), and gas target for astrophysics studies (^{44}Ti from PSI). Also, for the first time the Cracow and Milano groups used MINIBALL for pilot studies of incomplete fusion with ^{98}Rb . Among the new methods, the active chamber MAYA was used for the first time at ISOLDE by the Leuven and GANIL groups with a ^{12}Be beam. The REX reaction chamber saw first radioactive beam studies for Lund and Tsukuba experiments on ^{21}Na and ^{30}Mg , respectively. The Saarbrücken solid-state group recorded the first spectra with their new online diffusion chamber. Two test experiments with polarised beams obtained also very good results. The first used a new chamber for beta-NMR in “bad” vacuum coupled to COLLAPS, which led to the first-ever beta-NMR resonance (of ^{31}Mg) in a liquid, paving the way for biological studies. The second obtained for the first time polarized nuclei (^8Li) with tilted foils installed behind REX, with the polarization proven via beta-NMR. Finally, the CRIS experiment reached the expected detection efficiency and studied Fr isotopes down to ^{202}Fr .

To the remaining successes of the year belonged ISOLTRAP investigations of masses of very exotic $^{52-54}\text{Ca}$. ISOLTRAP’s electrostatic traps joined RILIS and the WINDMILL alpha-decay station to record the hyperfine structure of At and Au isotopes. Coulomb excitation of the troublesome ^{72}Kr finally took place. Miniball was also used to Coulomb-excite Cd, Sm, Po, and Rn isotopes, and for transfer reactions on ^{72}Zn . COLLAPS got very good laser-spectroscopy results on K, Ca, and Cd isotopes. Successful emission-channelling spectra were recorded on the challenging ^{11}Be . WITCH had a high-statistics run with ^{35}Ar and the total absorption spectrometer (TAS) took data on Hg isotopes after a break of a few years. Studies of Beta-delayed proton emission from the halo nucleus ^{11}Be were also performed. This list is not exhaustive.

3.2.5 USERS MEETINGS

During the 2nd reporting period from March 2012 to August 2013 one users meetings took place at CERN. It was held 17-19 December 2012 and was attended by 133 people of whom 117 were users (<https://indico.cern.ch/conferenceDisplay.py?confId=202232>).

Young researchers were gathered at different training courses held at ISOLDE during 2013. One dedicated to “Statistical Methods in Nuclear Physics” was given by Prof. K. Riisager from Aarhus University from the 18th to the 21st March 2013.

(<http://indico.cern.ch/conferenceDisplay.py?confId=218651>)

The ISOLDE Nuclear Physics Summer lecture series was given by Prof. R. Casten from Yale University from the 23rd to the 26th July 2013.

(<http://indico.cern.ch/conferenceDisplay.py?confId=252938>)

ANNEXES

Annex 1 Composition of the Users Selection Panel

See “Selection Panel” in MS Access Database

Annex 2 List of User-Projects

See “List of User-Projects” in MS Access Database

Annex 3 List of Users

See “List of Users” in MS Access Database

Annex 4 List of Publications (from work carried out under the Transnational Access activity)

See “List of Users’ Publications” in MS Access Database