

**TNA04:TRANSNATIONAL ACCESS TO JYU-J YFL
PR2 (01/03/2012 – 31/08/2013)**

Description of the publicity concerning the new opportunities for access

The measures taken to publicise the opportunities for access are:

a dedicated **web site**:

<https://www.jyu.fi/accelerator/ensar.html>

In web site it is described:

Who can apply

How to apply

Call for Proposals

Financial Support

Structure and Services of the research infrastructure

Advertisement of calls for proposals (15 March and 15 September) and new developments at JYU-JYFL are published in **JYFL Accelerator News** biannually, which is posted to nuclear physicists all over the world and published at <http://www.jyu.fi/accelerator/aneews>.

Description of the selection procedure

Access is based on approved proposals for the experiments (= projects) to be carried out at the JYU-JYFL Accelerator Laboratory by the user groups. They are evaluated by the Program Advisory Committee (PAC) (= the Users Selection Panel), which meets in Jyväskylä around 2 weeks after the deadline for submitting proposals (March 15 and September 15).

Before the PAC meeting, every proposal is looked at in great detail by one PAC member, if possible by someone with particular experience in the relevant research topic. During the PAC meeting, each proposal is discussed in detail. The criteria used in judging a proposal are: the importance of the physics topic, the feasibility and the suitability for the JYFL facility. The PAC can propose to reduce the amount of beam time from that requested. After the discussion of all proposals, they are ranked according to the average mark they received. Since there are 2 calls for proposals per year, it makes no sense to award more than about 6 months worth of experiments during each PAC meeting. Going from the highest to lowest ranked proposals, the beam time is added until a total time of 120 to 150 days is reached, thus setting a cut-off mark. The PAC then recommends to approve the proposals with a mark higher than this cut-off value. All spokespersons of the proposals are notified of the result of the PAC discussion and of how much beam time (if any) was awarded.

The decision to award financial support under the ENSAR-TNA contract is taken by the board of the Accelerator Laboratory. During the PAC selection process, no priority is given to new and young users of the facility. However, this criterion is taken into account in awarding the financial support.

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

Three Panel members of P1 were replaced by new members.

Three selection meetings: on 13th April 2012, 19th October 2012 and 18th April 2013.
A total of 18 proposals (projects) out of 26 proposals eligible for ENSAR support were approved for experiments at JYU-JYFL-ACCLAB.

Transnational Access activity

A total of 47 out of 65 approved eligible proposals have been selected for execution within the 1st and 2nd ENSAR reporting periods (1st of September 2010 – 31st of August 2013).

A total of 25 projects have been executed during the reporting period. All of the projects belong to the field of nuclear physics and related applications, and are based on experiments performed at the JYU-JYFL Accelerator Laboratory by employing beams from the JYFL cyclotron and available instrumentation. The ENSAR supported experiments were performed by the visiting users in collaboration with the local expert research groups and technical staff.

During the second reporting period, a total of 1584 beam-time hours (share of the supported access) were delivered, 158 users (travel+sub. reimbursed) have visited the facility and spent 1336 person-days at JYFL.

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.

The supported projects are:

23. S10 22.2. - 5.3.2012

Spectroscopy of the odd-proton 249,251Md

24. S08 12.- 22.3.2012

Simultaneous conversion-electron and gamma-ray spectroscopy using SAGE; an in-beam study of 253No

25. S09 28.3. - 10.4.2012

Complete Spectroscopy of the Transfermium Nucleus 255Lr (in-beam part)

26. JR104 (2nd part) 2.- 9.5.2012

Proof-of-principle of double-beta-tagging

27. JR113 16. - 20.5.2012

DPUNS commissioning

28. JR114 18.6. - 2.7.2012

Lifetime Measurements of Proton-Unbound States in 151Lu; Proton Emission from a Spherical or Deformed system?

29. J17 6.- 13.8.2012

The evolution of collectivity near the $N = Z = 50$ closed shell in the neutron-decient nuclei 111I and 113I using DPUNS

30. JR117 20.- 27.8.2012

Electromagnetic transition strengths in the yrast band and shape coexistence in 180Pt

31. I175 27.- 31.8.2012
Deep-Inelastic Reactions with the IGISOL Technique for the Production of Heavy Neutron-Rich Isotopes
32. JR109 19.9.-1.10.2012
Search for non-collective transitions in ^{166}Os
33. A75 30.01. - 2.02.2012
Energy-Loss Straggling of Swift Heavy Ions in Matter
34. JR115 19.- 29.10.2012
Shape co-existence in odd-A isotopes: In-beam spectroscopy of $^{177,179}\text{Au}$
35. JR110 1.- 12.11.2012
Prompt and delayed spectroscopy of ^{199}At and ^{201}At
36. JR107 3.- 11. 12. 2012
Configurations and Competing Structures in ^{194}Bi and ^{195}Bi .
37. NRO102 18. - 27.12.2012
Bimodal Fission of ^{106}Sg isotopes
38. L03 (2nd part) 7.-14.1.2012
Search for fast α decays in ^{218}Th and ^{216}Ra
39. L01 21.1.- 4.2.2013
Decay spectroscopy of short-lived exotic nuclei using LISA
40. I183 18. - 27.2.2013
Diffusion of Pt and Pd additives in silicides studied by radiotracers
41. I-157 18-20.3.2013
Search for the second excited ^{12}C 2^+ state using ^{12}N and ^{12}B decay beta-triple-alpha coincidence measurements at IGISOL
42. A82 25.-28.03.2013
Neutron yields from $d+^{13}\text{C}$ reaction for studies of intense intermediate energy neutron source
43. JR124 28.3.2013 - 8.4.2013
Identification of excited states in ^{70}Kr and ^{74}Sr
44. JR118 6.- 20.5.2013
Decay study of ^{113}Ba
45. S14 10.- 17.6.2013
Simultaneous in-beam gamma-ray and conversion electron spectroscopy of ^{194}Po employing the SAGE spectrometer
46. S12 5.8.-12.8.2013
Probing the $E0$ transitions in ^{186}Pb using the SAGE spectrometer
47. S16 19.- 27.8.2013
Characterisation of a new structure in octupole-deformed ^{222}Th using gamma-ray and conversion-electron spectroscopy

Scientific output of the users at the facilities

Please find in Annex 5 the list of peer-reviewed publications during the ENSAR P2 based on experiments supported by the previous TNA (FP6-EURONS) at JYU-JYFL and **not yet reported to EC** and by ENSAR during P2. The number of publications acknowledging EURONS and ENSAR within P2 is 19 and 11, respectively. (Note that in the Annex 4 of the data base only allows to insert publications related to the projects executed within the same period).

A clear highlight (Project JR111, P1) was the long-awaited first observation of excited states in the Z=104 nucleus ^{256}Rf . Published in PRL, the manuscript was selected as an “Editor’s Suggestion” and for a “Viewpoint” article on the American Physical Society website Physics (“Putting a spin on superheavy elements”

<http://physics.aps.org/articles/v5/73>). In addition to these, eight conference proceedings or technical design reports have been co-authored by the group members.

“Shell-Structure and Pairing Interaction in Superheavy Nuclei: Rotational Properties of the Z=104 Nucleus ^{256}Rf ”
Phys. Rev. Lett. 109, 012501 (2012)

P.T.Greenlees, J.Rubert, J.Piot, B.J.P.Gall, L.L.Andersson, M.Asai, Z.Asfari, D.M.Cox, F.Dechery, O.Dorvaux, T.Grahn, K.Hauschild, G.Henning, A.Herzan, R.-D.Herzberg, F.P.Hessberger, U.Jakobsson, P.Jones, R.Julin, S.Juutinen, S.Ketelhut, T.-L.Khoo, M.Leino, J.Ljungvall, A.Lopez-Martens, R.Lozeva, P.Nieminen, J.Pakarinen, P.Papadakis, E.Parr, P.Peura, P.Rahkila, S.Rinta-Antila, P.Ruotsalainen, M.Sandzelius, J.Saren, C.Scholey, D.Seweryniak, J.Sorri, B.Sulignano, Ch.Theisen, J.Uusitalo, M.Venhardt

User meetings

The users meeting on 11 - 13 . 6. 2013 was dedicated to the JYFL-IGISOL users. It was held at JYFL with 25 foreign and 20 national participants.

<https://www.jyu.fi/fysiikka/en/research/accelerator/igisol/WS/IGWS2013/WSparticipants>

Annexes

Annex 1 – Composition of the Users Selection Panel

Annex 2 – List of User-Projects

Annex 3 – List of Users

Annex 4 – List of Publications (incomplete as only publications from P2-projects is allowed).

Annex 5 – List of Publications (during P2 from earlier EURONS and ENSAR supported projects)