

EGAN

European Gamma and Ancillary detectors Network

a network for the **high-resolution gamma-ray spectroscopy**
and **ancillary instrumentation** community

Gammapool Workshop

ECT*, May 8-12, 2006

• 60 participants

• 35 talks

Round table and
general discussion on:

- 1) Resources maintenance
- 2) Large Gamma-ray Spectroscopy Network

<http://gammapool.inl.infn.it/ECT2006/>

ECT* European Centre for Theoretical Studies in Nuclear Physics and Related Areas

**Gamma-Ray Spectroscopy in Europe
Present and Future Challenges**

ECT* home | Reaching ECT* | Gammapool website

ECT*, 8 -12 May, 2006

Main Topics

- Radioactive beams with RISING
- Binary reactions with CLARA
- p-rich and heavy nuclei with JUROGAM
- γ spec with EXOGAM
- High spin with GASP
- Radioactive beams with REX ISOLDE
- Resources in Europe
- Future developments
- Applications

Full program

**γ -ray spectroscopy in Europe
present and future challenges**

Experimental nuclear structure physics has produced a large amount of interesting results during the last decade and is facing still better perspectives. The atomic nucleus has been studied far from of stability, expanding the limits of isospin and angular momentum. The continuous development of high resolution gamma-ray detector systems and powerful ancillaries have been of vital importance on this respect, leading to unexpected insights into the nuclear structure. In the framework of the Gammapool Network, this workshop is devoted to the presentation of the status and to the discussion of the perspectives on nuclear spectroscopy research. Sessions are dedicated to the presentation of recent theoretical developments, the last results obtained in the different experimental campaigns and gamma-ray facilities in Europe, and to the discussion on the future research, the experimental developments and technical challenges.



Organizers
on behalf of the Gammapool Network Steering Committee

Silvia M. Lenzi *University of Padova and INFN*
Daniel R. Napoli *Laboratori Nazionali di Legnaro*
Geir Sletten *Niels Bohr Institute, Copenhagen*
Wolfram Korten *CEA, Saclay*

Speakers

Faical Azaiez (IPNO, Orsay, France), Peter Butler (U. of Liverpool, UK), Franco Camera (INFN Milano, Italy), Bo Cedervall (KTH, Stockholm, Sweden), Robert Chapman (U. of Paisley, UK), Gilles de France (GANIL, Caen, France), Alfred Dewald (JKP, Cologne, Germany), Pieter Doornenbal (GSI, Darmstadt, Germany), Luis Egidio (UAM, Madrid, Spain), Claes Fahlander (U. of Lund, Sweden), Alessandro Feliciello (INFN Torino, Italy), Andres Gadea (INFN LNL, Italy), Juergen Geri (GSI, Darmstadt, Germany), Andreas Goergen (CEA, Saclay, France), Paul Greenlees (JYFL, Jyväskylä, Finland), Florent Haas (IPHC, Strasbourg, France), Ikuko Hamamoto (U. of Lund, Sweden), Jean Jolie (JKP, Cologne, Germany), Pete Jones (JYFL, Jyväskylä, Finland), Dave Joss (CLRC, Daresbury, UK), Rauno Julin (JYFL, Jyväskylä, Finland), Thorsten Kroell (TU Muenchen, Germany), Araceli Lopez Martens (JN2P3, CSNSM, France), Nicolae Marginean (INFN LNL, Italy), Paul Nolan (U. of Liverpool, UK), Alfredo Poves (UAM, Madrid, Spain), Peter Reiter (JKP, Cologne, Germany), Maurycy Rejmund (GANIL, Caen, France), Take Saito (GSI, Darmstadt, Germany), Gary Simpson (JN2P3, LPSC, France), John Simpson (CLRC, Daresbury, UK), Geir Sletten (NBI, Copenhagen, Denmark), Irina Stefanescu (KU, Leuven, Belgium), Christophe Theisen (CEA, Saclay, France), Calin Ur (INFN Padova, Italy), Piet van Isacker (GANIL, Caen, France), Nigel Warr (JKP, Cologne, Germany), Ramon Wyss (KTH, Stockholm, Sweden)

Secretary
to call from outside the ECT* dial (+39) 0461 314 before the three digits extension

Cristina Costa, Project co-ordinator: extension 730, cristina@ect.it

Gammapool Workshop

Padova, May 11-12, 2007

50 participants, 14 countries
23 talks

Two sessions:

- Detectors Technology
- Running and future campaigns on Gamma-Spectroscopy

Two round tables:

- Lol for a Network
- Lol for a JRA

<http://gammapool.inl.infn.it/Padova2007/>



Motivation

Workshop for the European Gamma-ray Spectroscopy Network

Padova, May 10-11, 2007

Talks and Next
Steps



First
announcement
Program

Accommodation
Welcome to Padova

Letter of intent for this Workshop

European Gamma-ray Spectroscopy Network

The successful construction and operation of Euroball and other large Germanium detector arrays via European collaborations encourages the gamma spectroscopy community to form a wider Network to enhance synergies among the research groups on an European scale for frontline research utilizing high-resolution gamma-ray spectroscopy under different experimental conditions. We therefore suggest the establishment of such an **European Gamma-ray Spectroscopy Network**.

The objective of the European Gamma-ray Spectroscopy Network will be:

- to provide a common forum for the high-resolution gamma-ray spectroscopy community;
- to promote collaborative ventures between experimental research groups and between experimental and theoretical researchers;
- to strengthen the collaboration with other research communities addressing similar physics questions using different tools;
- to provide the wider community with information regarding potential opportunities at various facilities within Europe;
- to form working groups to address specific tasks where additional expertise is required;
- to ensure transfer of knowledge by organising training activities for young scientists;
- to promote a network of European laboratories for the development of new detection technologies for gamma rays and to repair and maintain detectors;
- to encourage and support interdisciplinary ventures for the use of gamma-ray spectroscopic techniques in other fields (i.e. medicine, security, imaging, mine detection, etc.);
- to promote the transfer of knowledge and technology to society.

Workshops to bring together representatives from the world-class gamma-ray facilities will be organised on a regular basis (every 1-2 years).

The network will also assess the future needs of the community and discuss the perspectives.

Organizers

 on behalf of the **Gammapool Network Steering Committee**

Dave M. Cullen *University of Manchester*
Silvia M. Lenzi *University of Padova and INFN*
Daniel R. Napoli *Laboratori Nazionali di Legnaro*

Secretary

Ms. Annarosa Spalla, spalla@pd.infn.it

EGAN

European Gamma and Ancillary detectors Network

a network for the **high-resolution gamma-ray spectroscopy**
and **ancillary instrumentation** community

objectives

Promote

the optimum use of the resources

pooling of distributed equipment

collaboration for the maintenance of detectors

enhancing det. labs synergies

development of new technologies

collaborative ventures

between experimental research groups

between experimentalists and theoreticians

transfer of knowledge

training courses for young researchers

exchange key personnel

Coordinate

design and construction

ancillary devices

mechanical design compatibility

development

data acquisition and electronics

integration

γ detectors and ancillaries

ENSAR

EGAN

European Nuclear Science and Applications Research

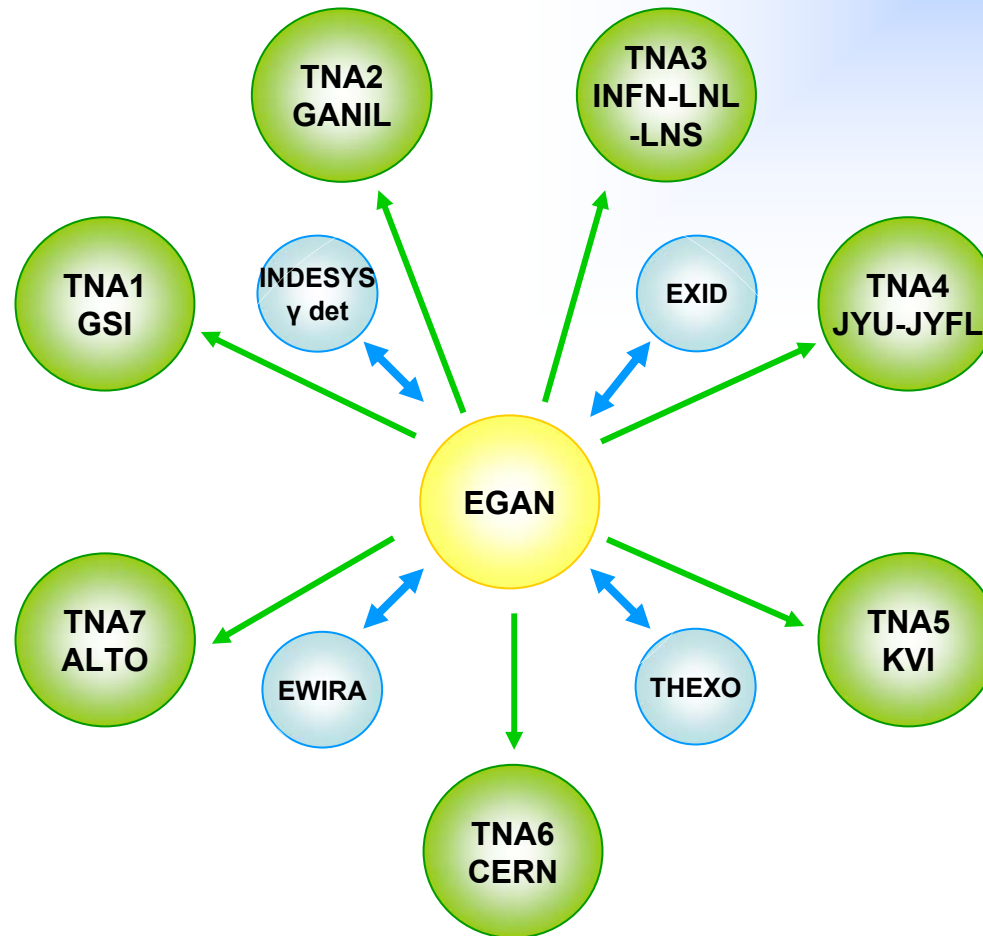
NA01	FISCO – Financial and Scientific Coordination Network
NA02	ECOS - European Collaboration On Stable ion beams
NA03	EUR-ISOL - European ISOL Network
NA04	ATHENA - Advanced Theory and Experiments for Nuclear Astrophysics
NA05	NEMO - Network on experimental techniques for Nuclear Electromagnetic Moments
NA06	EGAN - European Gamma and Ancillary detectors Network
NA07	ETHEN - Nuclear Theory Networking for Exotic Nuclei

TNA01	GSI, Darmstadt, D
TNA02	GANIL, Caen, F
TNA03	INFN-LNL, Legnaro, I
TNA04	JYU-JYFL, Jyväskylä, FIN
TNA05	RUG-KVI, Groningen, NL
TNA06	CERN-ISOLDE, Geneva, CH
TNA07	CNRS-ALTO, Orsay, F

JRA01	ASTRIS - Advanced Stable and Radioactive Ion Sources
JRA02	ISOMATT - ISOL Mesoporous Actinide Targets
JRA03	PREMAS - Low Energy beam preparation, manipulation and spectroscopy
JRA04	INDESYS - Innovative solutions for nuclear physics detectors: "From basic R&D to applications for the society"
JRA05	EXID - EXotic nuclei IDentification
JRA06	FREEDAC - Front End Electronics, Data Acquisition and Control
JRA07	SiNuRSE - Simulations for Nuclear Reactions and Structure in Europe
JRA08	EWIRA - East West Integrated Research Activities
JRA09	THEXO - Theoretical tools in support of Infrastructures

Requested to the EU: ~14 M€

EGAN connections to proposed TNA and JRA



the tasks (1)

Task 1 **Co-ordination of Scientific Activities and Dissemination**

Scientific Committee:

- promote innovative and optimum use of the resources
- encourage pooling of distributed equipment
- promote collaborative ventures
- organize workshops
- organize training activities
- development and maintenance of website and database
- disseminate information

the tasks (2)

Task 2 **Co-ordination on Ancillary Instrumentation**

Working Groups:

Co-operation on the use, design and construction of ancillary detectors to improve the performance and compatibility of the devices.

improve performances and compatibility

Co-operation on designing and building the electronics and data acquisition and on the mechanical integration.

Exchange of information on the development of simulation tools

the tasks (3)

Task 3

Collaboration Workshops

basic research

technical developments

applications

Task 4

Transfer of knowledge

training courses for new users

on biannual basis

exchange of key personnel

*to ensure common knowledge base in
detectors development and maintenance*

the EGAN budget

Task 1: Scientific Committee and data base				
Participant	GSI (M. Gorska)	IN2P3 (A. L.Martens)	INFN (S. Lenzi)	U-Liverpool (P. Nolan)
<i>Estimated Travel and other Costs including Overheads</i>	5	5	25	5
Sum TOTAL COSTS for Task 1 of work package NA06 = 40 k€				
Task 2: Activity of the WGA				
Participant	GSI	IN2P3	INFN	U-Liverpool
<i>Estimated Total Costs including Overheads</i>	10	10	10	10
Sum TOTAL COSTS for Task 2 of work package NA06 = 40 k€				
Task 3: Collaboration Workshop				
Participant	GSI	IN2P3	INFN	U-Liverpool
<i>Estimated Total Costs including Overheads</i>	15	15	15	15
Sum TOTAL COSTS for Task 3 of work package NA06 = 60 k€				
Task 4: Transfer of knowledge				
Participant	GSI	IN2P3	INFN	U-Liverpool
<i>Estimated Total Costs including Overheads</i>	5	5	5	5
Sum TOTAL COSTS for Task 4 of work package NA06 = 20 k€				
TOTAL Estimated requested EC budget of work package NA06 = 160 k€				

participants

- Belgium: KU-Leuven
- Bulgaria: U-Sofia, INRNE-BAS
- Denmark: UKBH
- Finland: JYU-JYFL
- France: IN2P3 GANIL, CEA-DSM-DAPNIA Saclay, CSNSM-Orsay, IPN-Orsay, IPHC-Strasbourg, IPN-Lyon
- Germany: GSI, FZD, U-Koln, TU-Darmstadt
- Greece: NCSR-Athens
- Hungary: ATOMKI
- Italy: INFN: LNL, Padova, Milano, Firenze, Napoli
- Poland: U-Warsaw, IFJ-Pan
- Romania: NIPNE
- Serbia: U-Novı Sad
- Spain: IFIC-Valencia, UAM-Madrid, U-Huelva
- Sweden: KTH, U-Lund, U-Uppsala
- Turkey: U-Ankara, U-Istanbul, U-Nigde
- UK: STFC, U-Liverpool, U-Manchester, U-Surrey, U-York

The objectives will be:

- to ensure the efficient and innovative use of the important European gamma-ray spectroscopy resource;
- to provide the wider community with information regarding potential opportunities at various facilities within Europe;
- to promote the work of the gamma-ray spectroscopy community to society in order to help the transfer of innovative knowledge and technologies;
- to disseminate and ensure transfer of knowledge by organizing training activities to educate young scientists and engineers;
- to promote a collaboration of European laboratories for the development of new gamma-ray detector technology;
- to promote a collaboration of European laboratories for the maintenance and repair of the detectors and associated equipment;
- to promote the coordination of the design and construction of ancillary detectors and devices in order to maximize its compatibility, minimizing the impact into the performance of the large Ge arrays.

Objectives (cont.)

- to promote synergy on data acquisition and electronics developments to facilitate the integration of gamma-ray detectors with different ancillary devices.
- to promote collaborative ventures between experimental research groups and between experimental and theoretical researchers;
- to encourage the pooling of distributed equipment in order to enhance synergies between complementary resources;
- to strengthen the collaboration with other research communities addressing different physics questions using similar tools and to encourage and support interdisciplinary ventures for the use of gamma-ray spectroscopic techniques in other fields (e.g. medicine and diagnostic imaging, security, environmental monitoring, gamma-ray astronomy, astroparticle physics, geophysics, etc.);
- to develop new perspectives for the future of gamma-ray spectroscopy on a European scale.

These objectives will be achieved through the following initiatives:

- The network will organize workshops on an annual basis.
- The network will facilitate the exchange of key technical personnel between institutions to ensure a widespread and homogeneous knowledge base.
- The network will organize on-site training for both young scientists and engineers.

ENSAR

Participant no. *	Participant organisation name	Participant short name	Country
1 (Coordinator)	Gesellschaft für Schwerionenforschung mbH	GSI	Germany
2	GRAND ACCELERATOR NATIONAL D'IONS Lourds	GANIL	France
3	Instituto Nazionale di Fisica Nucleare	INFN	Italy
4	University of Jyväskylä	JYU	Finland
5	Rijksuniversiteit Groningen	RUG	The Netherlands
6	European Organization for Nuclear Research	CERN	EU
7	Centre nationale de la recherche scientifique	CNRS	France
8	Technische Universität Wien (Vienna University of Technology)	TU Wien	Austria
9	Université Libre de Bruxelles	ULB	Belgium
10	Katholieke Universiteit Leuven	K.U. Leuven	Belgium
11	Institute for Nuclear Research and Nuclear Energy, Bulgarian Academy of Sciences	INRNE-BAS	Bulgaria
12	Ruder Boskovic Institute	RBI	Croatia
13	Nuclear Physics Institute of the ASCR, v.v.i.	NPI	Czech Republic
14	Commissariat à l'énergie atomique	CEA	France
15	Johann-Wolfgang-Goethe Universität Frankfurt am Main	GUF	Germany
16	Justus-Liebig-Universität Giessen	JLU	Germany
17	Johannes Gutenberg-Universität Mainz	JOGU Mainz	Germany
18	Technische Universität Darmstadt	TUD	Germany
19	Ludwig-Maximilians-Universität München	LMU	Germany
20	Universität zu Köln	Uni Köln	Germany
21	National Centre of Scientific Research	NCSR	Greece
22	Institute of Nuclear Research of the Hungarian Academy of Sciences	ATOMKI	Hungary
23	Foundation Bruno Kessler	FBK	Italy
24	University of Warsaw	UW	Poland
25	Instytut Fizyki Jadrowej im. Henryka Niewodniczanskiego Polskiej Akademii Nauk	IFJ PAN	Poland
26	Fundacao da Universidade de Lisboa	FUL	Portugal
27	Institutul National de Fizica si Inginerie Nucleara – Horia Hulubei (National Institute for Research and Development for Physics and Nuclear Engineering- Horia Hulubei)	IFIN-HH	Romania
28	UNIVERSIDADE DE SANTIAGO DE COMPOSTELA	USC	Spain
29	CENTRO DE INVESTIGACIONES ENERGÉTICAS MEDIOAMBIENTALES Y TECNOLÓGICAS	CIEMAT	Spain
30	Universidad Complutense de Madrid	UCM	Spain
31	Consejo Superior de Investigaciones Científicas	CSIC	Spain
32	University of Seville, Fisica Atomica, Molecular y Nuclear	FAMN	Spain
33	Josef Stefan Institute	JSI	Slovenia
34	Paul-Scherrer Institut	PSI	Switzerland
35	UNIVERSITAET BASEL	UBas	Switzerland

Participant no.	Participant organisation name	Participant short name	Country
37	THE UNIVERSITY OF MANCHESTER	UNIMAN	United Kingdom
38	The University of Liverpool	ULIV	United Kingdom
39	The University of Edinburgh	U-Edinburgh	United Kingdom
40	The University of York	U-York	United Kingdom
Associated Partners			
	University of Ghent	UGHE	Belgium
	Institute of Reference Materials and Measurements	IRMM	Belgium
	Université Catholique de Louvain	UCL	Belgium
	University of Sofia	U-Sofia	Bulgaria
	University of Zagreb	FSUZ	Croatia
	Charles University of Prague	CUNI	Czech Republic
	Nuclear Physics Institute of the ASCR	NPI	Czech Republic
	University of Aarhus	AU	Denmark
	Institut Laue Langevin	ILL	France
	Laboratoire de Physique Subatomique et des Technologies Associees	SUBATECH	France
	University of Strasbourg	ULP	France
	University of Toulouse	UPS	France
	Forschungszentrum Karlsruhe	FZK	Germany
	Max Planck Institute for Astrophysics	MPA	Germany
	Max Planck Institute for Chemistry	MPIC	Germany
	Technische Universität München	TUM	Germany
	University of Erlangen	UERL	Germany
	Jacobs Universität	UJAC	Germany
	Universität-Rostock	UROS	Germany
	Universität Tübingen	UTUE	Germany
	Forschungszentrum Jülich	FZJ	Germany
	Forschungszentrum Dresden-Rossendorf	FZD	Germany
	Max Planck Institute for Complex Systems	MPICS	Germany
	University of Marburg	UMAR	Germany
	University of Ulm	UULM	Germany
	Aristotle University of Thessaloniki	UTHE	Greece
	National Technical University of Athens	NTUA	Greece
	Soreq Nuclear Research Center	SOREQ	Israel
	The Weizmann Institute	TWI	Israel
	Hebrew University	HEBU	Israel
	Technion – Israel Institute of Technology	IIT	Israel
	Astronomical Observatory of Rome (Observatorio Astronomico di Roma)	OAR	Italy
	University of Milano	UMIL	Italy
	University of Padua	UPAD	Italy
	University of Milano	UMIL	Italy
	University of Napoli	UNAP	Italy
	University of Trento	UTRE	Italy
	University of Latvia - Universitas Latviensis	IPUL	Latvia
	Fizikos Institutas	IF	Lithuania
	Free University of Amsterdam	Free Uni	Netherlands
	Nationaal instituut voor subatomaire fysica (National institute for subatomic physics)	NIKHEF	Netherlands
	University of Oslo	UOSL	Norway

ENSAR

	University of Bergen	UoB	Norway
	Maria Curie-Sklodowska University	UMCS	Poland
	University of Wroclaw	UWRO	Poland
	The Andrzej Soltan Institute for Nuclear Studies	IPJ	Poland
	Instituto Tecnológico e Nuclear	ITN	Portugal
	Instituto Tecnológico e Nuclear Lisbon	ITNL	Portugal
	Centro de Fisica Nuclear da Universidad de Lisboa	CFNUL	Portugal
	Instituto Superior Técnico – Universidade Técnica de Lisboa	IST	Portugal
	Institute for Space Sciences	ISS	Romania
	University Politecnica of Bucharest	UPOL	Romania
	Slovak Academy of Science	SAS	Slovakia
	Comenius University in Bratislava	UBRA	Slovakia
	University of Huelva	U-Huelva	Spain
	Universidad Autónoma de Madrid	UAM	Spain
	Universidad de Alicante – University of Alicante	UALI	Spain
	Universitat Politècnica de Catalunya	UBAR	Spain
	University of Granada	UGRA	Spain
	University of Valencia	UVAL	Spain
	The Royal Institute of Technology	KTH	Sweden
	Faculty of Engineering at Lund University	LTH	Sweden
	Chalmers University of Technology	TU-Chalmers	Sweden
	Stockholm University	SU-MSL	Sweden
	The Svedberg Laboratory- Uppsala University	TSL	Sweden
	Observatory of Geneva	UGEN	Switzerland
	University of Bern	Uni Bern	Switzerland
	The Science and Technology Facilities Council	STFC	United Kingdom
	Keele University	UKEE	United Kingdom
	University of Surrey	Uni-Surrey	United Kingdom
	University of Paisley	U-Paisley	United Kingdom

ENSAR proposal

EGAN

Work package No	Work package title	Type of activity	Lead participant No	Lead participant short name	Person-months	Start month	End month	Indicative Total costs	Indicative requested EC contribution
WP01	NA01-FISCO	MGT	1	GSI	84	1	48	800.000 €	800.000 €
WP02	NA02-ECOS	COORD	7	CNRS	19	1	48	241.400 €	200.000 €
WP03	NA03-EUR-ISOL	COORD	6	CERN	33	1	48	295.000 €	150.000 €
WP04	NA04-ATHENA	COORD	18	TUD	45	1	48	286.451 €	154.000 €
WP05	NA05-NEMO	COORD	14	CEA	59	1	48	162.000 €	162.000 €
WP06	NA06-EGAN	COORD	3	INFN	28	1	48	160.000 €	160.000 €
WP07	NA07-ETHEN	COORD	23	FBK	50	1	48	150.000 €	150.000 €
WP08	JRA01-ASTRIS	RTD	3	INFN	176	1	48	1.472.000 €	750.000 €
WP09	JRA02-ISOMATT	RTD	6	CERN	149	1	48	1.030.174 €	522.000 €
WP10	JRA03-PREMAS	RTD	4	JYU	234	1	48	1.383.940 €	628.700 €
WP11	JRA04-INDESYS	RTD	28	USC	297,4	1	48	1.896.371 €	979.125 €
WP12	JRA05-EXID	RTD	3	INFN	169,4	1	48	1.458.527 €	585.000 €
WP13	JRA06-FREEDAC	RTD	14	CEA	216	1	48	2.294.089 €	700.500 €
WP14	JRA07-SiNuRSE	RTD	5	RUG	185	1	48	1.468.700 €	551.000 €
WP15	JRA08-EWIRA	RTD	11	INRNE-BAS	237	1	48	1.763.299 €	605.000 €
WP16	JRA09-THEXO	RTD	8	ULB	202	1	48	799.636 €	599.728 €
WP17	TNA01 Access to GSI	SUPP	1	GSI	0	1	48	1.143.640 € ¹	1.143.640 €
WP18	TNA02 Access to GANIL	SUPP	2	GANIL	0	1	48	1.202.540 € ¹	1.202.540 €
WP19	TNA03 Access to INFN-LNL-LNS	SUPP	3	INFN	0	1	48	3.201.325 €	1.055.312 €
WP20	TNA04 Access to JYU-JYFL	SUPP	4	JYU	0	1	48	2.075.267 €	899.404 €
WP21	TNA05 Access to RUG-KVI	SUPP	5	RUG	0	1	48	1.412.896 €	770.175 €
WP22	TNA06 Access to CERN-ISOLDE	SUPP	6	CERN	0	1	48	849.974 € ¹	849.974 €
WP23	TNA07 Access to CNRS-ALTO	SUPP	7	CNRS	0	1	48	350.117 €	350.117 €
	TOTAL				2.183,8			25.897.348 €	13.968.215 €

Networking activities in the FP7

To foster a culture of co-operation between the participants in the project and the scientific communities benefiting from the research infrastructure.

Could include (non exhaustive list):

- joint management and pooling of distributed resources;
- development of common standards, protocols and interoperability;
- benchmarking;
- development and maintenance of common databases for the purpose of networking and management of the users and infrastructures;
- spreading of good practices;
- provision of consultancy and training courses to new users;
- foresight studies for new instrumentation, methods, concepts and/or technologies;
- promotion of clustering and concertation actions amongst related projects;
- coordination with national or international related initiatives and support to the deployment of global approaches to science;
- dissemination of knowledge;
- internal and external communication.