Support for Research from the EU

Opportunities offered by the Sixth Framework Programme (2003-2006)

N. Ferrari
Laboratori Nazionali del Gran Sasso

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Summary

- Introduction
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- INFN activities in the 6 FP

GLUE

Gruppo Lavoro Unione Europea

GLUE is the INFN workgroup for the European Union

GLUE is formed by one representative for each INFN National Laboratory:

Antonella Antonelli (coordinator)	Laboratori Nazionali di Frascati
Mario DePoli	Laboratori Nazionali di Legnaro
Nicola Ferrari	Laboratori Nazionali del Gran Sasso
Paolo Finocchiaro	Laboratori Nazionali del Sud

Contacts: e-mail at the following address: GLUE@infn.it
web page: http://www.infn.it/eu/GLUE_home.htm

The goals of GLUE are:

- **Diffusion of the information on the opportunities offered by EU contracts**
  - Seminars at the INFN National Commissions
  - Seminars in the INFN Sections and National Labs
  - Updated Web site specially devoted to INFN
- **General information for the presentation of new projects**
- **Bookkeeping of the EU Projects involving INFN**
- **Relations INFN - National Contact Points-EU**

The EU Sixth Framework Programme
6FP

The Framework Programme (FP) is the EU's main instrument for research funding in Europe.

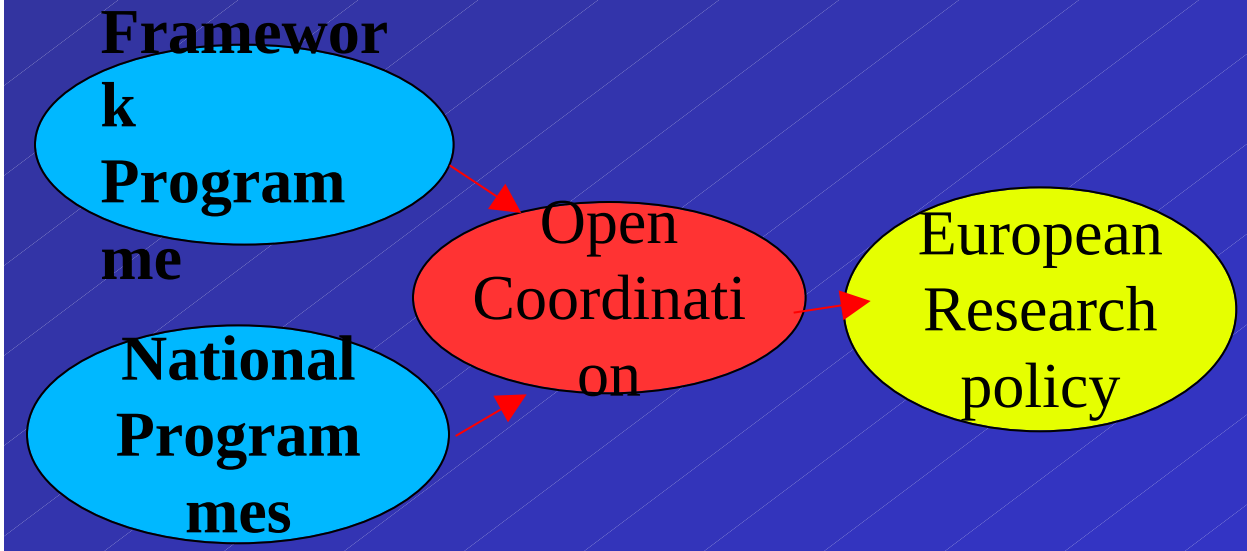
FPs cover a period of five years with the last year of one FP and the first year of the following FP overlapping. FPs have been implemented since 1984. The Sixth FP (FP6) will be fully operational as of January 1, 2003 through 2006.

The Sixth FP is proposed by the European Commission and adopted by Council and the European Parliament following a co-decision procedure on 3-Jun-2002.

The total budget for 6FP is 17500 M€
3.4% of EU budget 2002
5.4% of the EU national public research budget
+17% with respect to FP5

6FP : European Research Area

FP6 aims to contribute to the creation of a true
"European Research Area" (ERA).
ERA is a vision for the future of research in Europe
an internal market for science and technology.



Europe has a long standing tradition of excellence in research and innovation, and European teams continue to lead progress in many fields of science and technology. However our centres of excellence are scattered across the continent and all too often their efforts fail to add up in the absence of adequate networking and cooperation. In the past, collaborative actions have been initiated at European and Community level, but now is the time to bring our endeavours together and to build a research and innovation equivalent of the "common market" for goods and services. That structure is called the **European Research Area** and is regrouping all Community supports for the better coordination of research activities and the convergence of research and innovation policies, at national and EU levels.

EU policy in support of research the strategy in 6 FP

- **Strong support to research in selected priority areas selected by the EU commission:**
  - **Integrated Projects**
  - **Networks of Excellence**

- **Support to all other research areas for what concerns:**
  - **Human resources (mobility and training of researchers)**
  - **Support to big and important research infrastructures**

6FP : Time schedule

- **February 2001** — First proposal of FP6
- **May-June 2002** — Ratification by European Parlament
- **November 2002** — Launch Conference in Brussels
- **December 2002** — First call for proposals published
- **End 2003** — Start of first projects

6FP : The structure

The 6 FP is structured in two specific programmes (SP) for scientific and technology development (RTD), and one programme for EURATOM. The actual implementation of the programmes is done with of appropriate instruments or support schemes.

RTD Specific Programme 1
Integrating ERA
Strenghtening ERA

"Integrating ERA" is based on a **top-down action** concentrated on **selected priority areas**. Other actions ("Strengthening ERA") are intended to step up the coordination and to support the coherent development of research and innovation policies and activities in Europe.
The Total budget is **13665 M€**.

RTD Specific Programme 2
Structuring ERA

The programme is based on a **bottom-up action** based on **single initiatives and research activities**. The goal is to provide a structuring effect through a stronger link with national, regional and other European initiatives.
The total budget is **2605 M€**.

Specific Programme
EURATOM

The programme is based on a **top-down action** concentrated mainly on R&D for nuclear power plants, radioactive waste, controlled thermonuclear fusion, and radiation protection.
The total budget is **1230 M€**.

❑ SP1 "Integrating and Strengthening ERA"

"Integrating ERA" is focussed on 7 Priority thematic areas and some sp. activities:

1. **Genomics and biotechnology for Health 2255 M€**
2. **Information Society technologies 3625 M€**
3. **Nanotechnologies, intelligent materials, new production processes 1300 M€**
4. **Areonautics and space 1075 M€**
5. **Food safety and Health Risks 685 M€**
6. **Sustainable development, global change and ecosystems 2120 M€**
7. **Citiziens and governance in the knowledge based society 225 M€**

Specific activities covering a wider field of research

- Specific SME activities **430 M€**
- Specific International cooperation activities **315 M€**
- Policy support and anticipating scientific and technological needs **555 M€**

Non nuclear researches of the Joint Research Center 760 M€

TOT 13345 M€

"Strengthening ERA" is focussed on 2 groups of activities

- **Coordination of Research Activities 270 M€**
- **Development of Research/innovation policies 50 M€**

TOT 320 M €

❑ SP2 "Structuring ERA" is divided on 4 groups of activities

Research and Innovation	290 M€
Human Resources and Mobility	1580 M€
Research Infrastructures	655 M€
Science and Society	80 M€
TOT	2605 M€

❑ SP EURATOM is based on the following priorities and activities

Controlled thermonuclear fusion	750 M€	
Management of radioactive waste	90 M€	
Radiation Protection	50 M€	
Other activities in the field of nuclear technology		50 M€
Nuclear activities of the Joint Research Center	290 M€	
TOT	1230 M €	

Sectors of interest for INFN

Specific Programme	Area	INFN Interests
SP2 Structuring ERA	**Human resources and mobility**	**All sectors of research** **Mobility for young and experienced researchers** **Support for Conferences, workshops and Schools**
	Research Infrastructures	**Support for large infrastructures (in particular nat. Labs) in terms of access, development and networking.**
	Science and society	Support for organization of visits, open days, web sites, relation with public.
SP1 Integrating ERA	Genomics and biotechn. for health; Areonautics and space; Sustainabe development, ecosystems. Nanotechnologies	Adrotherapy, application of nuclear physics to medicine; Development of detectors on satellites (technological developments); Application of nuclear physics to enviromental sciences, archeometry
SP3 EURATOM	Management of rad. Waste Radiation protection	Applied nuclear physics in collaboration within EURATOM programs

Specific Programme 1 - Structuring ERA Human Resouces and Mobility

The mobility of researchers is promoted with a view to the successful creation of the European Research Area. This involves a coherent set of actions, largely based on the financing of structured mobility schemes for researchers. These are essentially geared at the development and transfer of research competencies, the consolidation and widening of researchers' career prospects, and the promotion of excellence in European research. With a view to further reinforcing the human potential for European research, this activity also aims to attract the best and most promising researchers from third countries, promote the training of European researchers abroad and stimulate the return of European scientists established outside Europe.

All actions under Human Resources and Mobility are designated as "Marie Curie Actions" (MC)

The overall budget in 6FP is 1580 M€

The activity is completely bottom-up and researchers are invited to submit proposals on any area of research

Researchers are "cathalogued" on the base of their experience (NOT AGE!)

- ***Early stage researchers*: < 4 years experience (typically Ph.D. students)**
- ***Experienced researchers*: > 4 years research experience or post-doc**

Marie Curie Actions

Host-driven actions

- Research Training Networks (RTN)
- Early Stage Research Training
- Host fellowships for the transfer of knowledge
- Conferences and Training courses

Individual-driven actions

- Intra-European fellowships
- Outgoing International Fellowships
- Incoming International Fellowships

Excellence Recognition

- Excellence Grants
- Excellence Awards
- MC Chairs

Return and reintegration

- European Reintegration grants
- International reintegration grants

Marie Curie Actions: Host-driven actions

Activity	Aims
Research training networks (RTN)	At least three institutions in three different countries offer scientific and complementarity training and tranfer of knowledge within the context of a collaborative international research project. **Researchers: Early stage researchers; Experienced researchers with up to 10 years experience; all nationalities; mobility reqired; 3 months to 3 years** **Typical size: 800 kEuro – 2 Meuro / network** **10 research teams per network** **Training of 20 researchers per network** **70 RTN 2003; 70 RTN 2004**
Early stage research Training (EST)	Structured training (e.g. doctoral studies) is offered by one or more institutions for the acquisition of specific scientific and complementary skills **Researchers: Early stage researchers; all nationalities; mobility required;** **3 months to 3 years** **Typical size: 1 Meuro / network** **1-2 research structures per contract** **Training of 20 person-years per contract** **35 contracts 2003; 40 contracts 2004**

Marie Curie Actions: Host-driven actions

Activity	Aims
Host fellowship for transfer of knowledge (toK)	In the MC **development scheme** researchers transfer knowledge to develop the research potential of institutions; entities in the less favoured region of EU and in the Associated Candidate States will be given priority. Marie Curie **Industry-Academia partnership** scheme supports long-lasting collaboration between enterprises and universities via exchange of researchers. **Researchers: Experienced researchers; all nationalities; mobility required;** **2 months to 2 years** **Typical size: 100 kEuro – 1 Meuro / network** **7 person/years per contract** **30 contracts 2003; 30 contracts 2004 (development scheme)** **10 contracts 2003; 10 contracts 2004 (Industry-Acad. Partnership)**
Support for Large conferences	To support the attendance of researchers at international events in their research area **Researchers:** Early stage researchers; Experienced researchers with up to 10 years experience; all nationalities except for events outside EU **Typical size: 50 kEuro/contract; support for 70 participants per event** **100 contracts 2003; 100 contracts 2004**
Conference and training courses Series of Events	Aim to support training and promote contact building between researchers through series of conferences and training events (e.g. summer schools, workshops, max 150 participants). Support for invitation of key speakers, publications, organisation. **Researchers**: Early stage researchers; Experienced researchers with up to 10 years experience; all nationalities. **Typical size: 250 kEuro – 1 Meuro /contract; support for 40 participants max** **100 contracts 2003; 100 contracts 2004**

Marie Curie Actions: Individual-driven actions

Activity	Aims
Intra-European Individual Fellowships (EIF)	The aim is to provide advanced training tailored to the researchers individual needs in order to become independent. **Researchers: Experienced researchers; EU or ass. nat.; mobility required 1 year to 2 years** **Typical size: 400 contracts 2003; 400 contracts 2004**
Incoming International Fellowships (IIF)	The aim is to attract **top-class** researchers from outside the EU and ass. states whilst responding to their needs for individual training. A return phase may be contemplated for fellows coming from developing countries, emerging and transition economies. **Researchers: Experienced researchers; third countries Nationals; mobility required ; 1 year to 2 years (+ 1 year return phase)** **Typical size: 60 contracts 2003; 80 contracts 2004**
Outgoing International Fellowships (OIF)	The aim is to enable researchers to broaden their international experience by carrying out a research training period in a third country with the security of a return phase in Europe **Researchers: Experienced researchers; EU or ass. nat; mobility required; 1 year to 2 years** **Typical size: 60 contracts 2003; 80 contracts 2004**

Marie Curie Actions: Excellence Promotion and Recognition

Activity	Aims
Grants for excellence Teams (EXT)	The aim is to provide advanced training tailored to the researchers individual needs in order to become independent. **Researchers:** European research teams working on leading edge research in EU member states or ass. countries: all nationalities; team leader selects the team members **4-year grant awarded on the basis of a well defined research programme** **Typical size: 25 contracts 2003; 30 contracts 2004** **800 kEuro – 1.6 MEuro**
Marie Curie Chairs (EXC)	The aim is to support world-class researchers for a period of research and training, encouraging them **to resume or further develop their carriers in Europe**. **Researchers:** World class experienced researchers; all nations; mobility required ; **1 year to 3 years** **Typical size: 10 chairs 2003; 10 chairs 2004**
Excellence Awards (EXA)	The aim is to give public recognition to excellence achieved by researchers who have in the past benefited from training and mobility support by the Community

Specific Programme 2 - Structuring ERA Research Infrastructures

" The ability of Europe's research teams to remain at the forefront of all fields of science and technology depends on their being supported by state-of-the-art infrastructures. The term "**research infrastructures**" refers to facilities and resources that provide essential services to the research community in both academic and/or industrial domains. Research infrastructures may be "single-sited" (single resource at a single location), "distributed" (a network of distributed resources, including infrastructures based on Grid-type architectures), or "virtual" (the service being provided electronically). The overall objective of this activity is to promote the development of a fabric of research infrastructures of the highest quality and performance in Europe, and their optimum use on a European scale based on the needs expressed by the research community "

Five Support schemes are available

- **Transnational Access (TARI)**
- **Integrating Activities (IA)**
- **Communication Network Development (CND)**
- **Design Studies (DS)**
- **Construction of New Infrastructures (CNI)**

Support for Research Infrastructures

Support Action	Aims and activities
Transnational Access (TARI)	Free access to european research infrastructures for EU users
Integrated Actions (IA)	To create a network of infrastructures at a european level. Activities will include in a single action: **Networking** (mandatory) **Transnational Access** **Common R&D for the improvement of the infrastructures**
Design Studies (DS)	The objective is to contribute, to feasibility studies and technical preparatory work undertaken for those new infrastructures which have a clear European dimension and interest
Construction of new Infrastructures (CNI)	support for the development of a restricted number of projects for new infrastructures in duly justified cases where such support could have a critical catalysing effect in terms of European added value. The Supports can reach a maximum of 10% of the total costs.
Communication Network Development	The objective of this scheme in support of existing research infrastructures is to create, a denser network between related initiatives, in particular by establishing a high-capacity and high-speed communications network for all research workers in Europe (GEANT) and specific high performance Grids and test-beds (GRIDs).

Le Integrated Actions

Le iniziative IA (Integrated Actions) sono di paricolare interesse per l' INFN poiche' sono indirizzate specificamente alle strutture di ricerca

Una IA si sviluppa su tre possibili attivita'

- **Networking**
  obbligatorio,
  componente fondamentale dell'IA

→ **Obiettivi: attraverso il networking**
- **Migliorare la cooperazione tra le infrastrutture**
- **Migliorare le prestazioni delle infrastrutture**
- **Migliorare I servizi delle infrastrutture**
- **Rendere coerenti I piani e le attivita' di ricerca**

- **Accesso Transnazionale**
  (TARI)

→ **Obiettivo**
- **Permettere l'accesso di gruppi di ricerca alle infrastrutture in modo coordinato**

- **R&D comune**
  (JRA, Joint Research Actions)

→ **Obiettivi attraverso R&D comune**
- **Sviluppo di strumentazione e tecniche volte al miglioramento dell-infrastruttura**

Specific Programme 2 - Structuring ERA Science and Society

" The activities carried out under this heading are intended to encourage the development of harmonious relations between science and society and the opening of innovation in Europe as well as contributing to scientist's critical thinking and responsiveness to societal concerns "

Three main axes

- **Bring research closer to society**
- **Responsible use of scientific and technological progress**
- **Stepping up the science/society dialogue**

Many possible activities, f.i.

- European Science week
- Working groups and networks to exchange experiences between the scientific and media communities
- Prizes and awards for scientific communication to public

6FP- Specific Programme 1
INTEGRATING ERA

The **priority thematic areas** represent the bulk of expenditure under the sixth framework programme. Through a highly focused Community research effort, the intention is to generate a substantial leveraging effect which, together with actions in other parts of the framework programme and through open coordination with other — regional, national, European and international—frameworks, will result in a coherent and highly effective common endeavour towards their overall objectives.

There are two new powerful instruments for implementing the research in the Priority Thematic Areas:

- The **Integrated Projects (IP)**
- The **Networks of Excellence (NoE)**

Other so called “Traditional Instruments” are available for smaller projects

Integrated Projects

Main purpose:
to support the objective-driven research needed to generate the knowledge required to implement the priority thematic areas IP should result in new knowledge development and/or demonstration componenets, as well as perhaps a training component

Activities: Each project should contain an integrated set of activities within a coherent management framework. The project should contain a research component and, as appropriate, technological development and/or demonstration activities

Consortium: Participants are supposed to signe a consortium agreement among themselves. There must be a minimum of three participants from three different member states or associate states, of which at least two should be member states or associated candidate countries.

Duration: IP are expected to have a duration of typically 3 to 5 years.

Community contribution: from several million to several tens of millions of Euros. No predefined cost cathegories; flexible implementation.

Networks of Excellence

Main purpose:
The NoE is an instrument for strengthening excellence by tackling the fragmentation of European research. the structuring and shaping of the way research is carried out in Europe on a particular topic in order to strenghthen the excellence in that topic

Activities:
The NoI is based on a joint programme of activities (JPA), that is the collective means by which the participants aim to achieve the goals of the network. The JPA should consist of a coherent set of new or reoriented activities that the participants undertake jointly. A joint program of activity will have several components:
1. integrating activities aimed at structuring and shaping the way the partners carry out research on the topic;
2. a programme of **jointly executed research** to support the network's goals;
3. a set of **activities designed to spread excellence**, the most important of which will be a joint programme for training researchers and other key staff. The larger networks can be expected to involve several hundreds of researchers. Of course networks may be of a much more limited size, but the necessary ambition and critical mass must be there

Participants: There must be a minimum of three participants from three different Member states ar associated states. However, as an indication, there should generally not be less than six participants

Duration and Community contribution A network must be supported long enough for its integration to take on a lasting nature. Support, in many cases, may therefore be needed for five yeras and, if justified, for perhaps more. In no case however will support be garanted for more than seven years

Call for proposals and deadlines

All FP6 activities are implemented through calls for proposals.
Here is a selection of the next deadlines for the possible areas of interest of INFN:

Support for Research Infrastructures

Support Scheme	Call	Deadlines	Budget
Transnational Access and Integrating activities	17-Dec-02	15-Apr-2003	**190 M€**
Design studies and Construction of new Infrastructures	Expected 1-Jul-2003	15-Oct-2003	**70 M€**

Science and Society

Support Scheme	Call	Deadlines	Budget
Programme support and networking for scientific and technological culture, young people, science education and carreers	17-Dec-02	open call up to 09-Dec-2003	**4 M€**
European Science Week 2004	17-Dec-02	13-May-2003	**3 M€**

Call for proposals - Human Resources: Marie Curie Actions

Support Scheme	Call	Deadlines	Budget
Research Training Networks	17-Dec-02	03-Apr-2003 19-Nov-2003	**230 M€**
Early Stage Training Fellowships	17-Dec-02	02-Apr-2003 11-Feb-2004	**130 M€**
Conferences and training courses	17-Dec-02	01-Apr-2003 20-Apr-2004	**20 M€**
Transfer of Knowledge Fellowships	17-Dec-02	22-May-2003 19-May-2004	**85 M€**
Intra-European Fellowships	17-Dec-02	12-Mar-2003 18-Feb-2004	**110 M€**
International Incoming Fellowships	17-Dec-02	21-May-2003 12-Feb-2004	**28 M€**
International Outgoing Fellowships	17-Dec-02	21-May-2003 12-Feb-2004	**20 M€**
MC Excellence Grants	17-Dec-02	20-May-2003 18-May-2004	**55 M€**
MC Chairs	17-Dec-02	20-May-2003 21-Jan-2004	**10 M€**
MC Excellence Awards	17-Dec-02	20-May-2003 18-May-2004	**0.5 M€**

Documentation

Basic Documentation from EU (personal selection)

- The 6th framework programme in brief
- Science, Technology and Innovation – Key figures 2002
- Participating in European Research
- A rough guide to the Marie Curie Actions

The above documents and others can be downloaded from the GLUE site
http://www.infn.it/GLUE_home.htm
You can find there also a list of links to other relevant web sites

Documents for the preparation of the proposals

The documents needed for the preparation of a proposal include:

- The **text of the call for proposal** published on the Official Journal of the EU
- A **working document** (general guideline for the preparation of the proposals)
- A **guide for the proposers** (detailed instructions on how to prepare the proposal)

All the calls and the documents necessary for submitting the proposals can be downloaded
From the official EU site **CORDIS** (**Community Research and Development Information Service**)
http://www.cordis.lu/calls/

INFN in the 6th FP

Research Infrastructures

Nuclear physics : 3 Proposals of IA
- Nuclear Structure
- Hadron Physics
- New accelerator techniques

Astroparticle Physics: 1 Proposal of IA

Human Resources (Marie Curie Actions)

Open to the initiative of single sections and individuals
Possible proposal for an Early Stage Trainig site for INFN (under discussion)

Participation in Integrated Projects and NoE

Many Letters of Interest
Sectors: Physics on satellites; Hadron therapy; Environmental physics

Lettere di intento presentate alla UE con partecipazione INFN

N.	Titolo	Tipo	Referente INFN	Argomento	Sezioni coinvolte	Tot istituti
1	**SPCXMED**	IP	M. Gambaccini	X-ray detector for medicine	FE, BO, AL, TO	8
2	**LIS**	IP	S. Gammino	Laser Ion Sources for technological applications	LNS	11
3	**NEDOME**	IP	G. Cuttone	Hadron therapy	LNS	12
4	**SPACE RAD**	IP	R. Battiston	Radiation detection in sapce	PG, PI, NA, MI, SI, BO, GE, Roma I, Roma II	45
5	**RIMES**	IP	A. Zucchiati	Environmental physics	GE, FI	26
6	**EGEE**	I3	R. Petronzio, M. Mazzuccato	Progetto GRID	INFN	23
7	**FLUKA**	NoE	G. Battistoni	Particle transport Monte Carlo code	MI	6
8	**EU-MICE**	NoE	G. Catanesi	Ionisation cooling of muons	BA, LNF, LNL, MI, NA, PD, RomaI, Roma III, Roma III, TS	5
9	**ASTRO-DDC**	NoE	L. Peruzzo	Development of instrumentation for Astroparticle Physics	PD, SI	29
10	**ATEREU**	NoE	G. Tornielli	Radioterapy with protoni	LNL	

N.	Titolo	Tipo	Referente INFN	Argomento	Sezioni coinvolte	Tot istituti
11	**NOVANUC**	NoE	G. Viesti	Threat Material detection	PD, LNL. PV	15
12	**SFR**	NoE	E. Palmieri	Superconducting radio frequency accelerator systems for light sources and FEL	LNL	10
13	**MAT**	NoE	G. Viesti	Mine Action Tecnoligies	PD, LNL, PV	72
14	**SCIPARC**	NoE	R. Tripiccione	N	PI	10
15	**SciParC**	NoE	F. Casali	Massively Parallel computers	BO	
16	**NANOCULT**	NoE	P. Mando'	Conservazione beni culturali	FI	16
17	**PROTONEYE**	NoE	L. Raffaele	Proton therapy	LNS	6
18	**COST-G8**	NoE	P. Mando'	Beni culturali	LBC, FI, GE	
19	**PROMS**	NoE	S. Bellucci	Nanotubes	LNF	7
20	**ATPROMO**	NoE	A. Zanini	Cosmic rays and atmospheric parameters	TO, LNF, TS	31
21	**NETCAT**	NoE	A. Zanini	Radioterapy BNCT	TO, LNL	22
22	**EuroMedIm**	NoE	R. Amendolia	Medical Imaging	GE, CA, PI, NA, TO	77
23	**CFSM**	NoE	P. Spillantini	Cryogen free superconducting magnets for space applications	LASA	
24	**SYNBIOMED**	NoE	E. Castelli	Biomedical research with syncrotron radiation	TS	30
25	**EuRaDIS**	NoE	E. Castelli	Radiation detectors for biomedical applications	TS, PI, TO	29

Concluding remarks

The 6 FP offers important opportunities for research in EU:

- Funding for research projects in the thematic priority areas
- Support to human resources and important infrastructures in all the research areas

INFN can participate in the 6FP through:

- Projects involving the national labs (transnational access, IA)
- Support for human potential (host driven, individual driven act.)
- Support for the organisation of workshops, schools, conferences
- Participation in IP and NoE in some of the thematic areas