The objective of NuPECC is to:

strengthen European Collaboration in nuclear science through the promotion of nuclear physics and its trans-disciplinary use and application in collaborative ventures between European research groups.

In particular the NuPECC:

1. define a network of complementary facilities within Europe and encourage optimisation of their usage;
2. provide a forum for the discussion of the provision of future facilities and instrumentation; and
3. provide advice and make recommendations to the ESF and to other bodies on the development, organisation, and support of European nuclear research and of particular projects.
Long Range Plan 2004: Perspectives for NP Research in the Coming Decade and Beyond

- Quantum Chromodynamics
- Phases of Nuclear Matter
- Nuclear Structure
- Nuclei in the Universe
- Applications of Nuclear Science
- Fundamental Interactions

Recommendations

- Dinamica dei quark e degli adroni
- Transizione di fase della materia nucleare
- Equazione di stato della materia nucleare
- Struttura Nucleare
- Astrofisica nucleare ed applicazioni interdisciplinari
- CSN2
<table>
<thead>
<tr>
<th>Integrated Infrastructure Initiatives (I3):</th>
<th>INFN ACTIVITIES</th>
</tr>
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<tbody>
<tr>
<td><strong>EURONS:</strong></td>
<td><strong>EUROpean Nuclear Structure Integrated Infrastructure Iniative (RII3-CT-2004-506065)</strong></td>
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<tr>
<td>9%</td>
<td>EXOTIC, FIESTA, GAMMA, MAGN-EXP, NUCL-EX, PRISMA2, ISOspIN, ASFIN2, LUNA2, ERNA</td>
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<tr>
<td>45 Participants</td>
<td>INFN participation: LNL-LNS-MI-PD</td>
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<tr>
<td><strong>HP:</strong></td>
<td><strong>Study of strongly interacting matter (RII3-CT-2004-506078)</strong></td>
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<tr>
<td>23%</td>
<td>AIACE, FINUDA, GRAAL, HERMES, PANDA, PAX, SIDDARTA, ALICE, HADES2, IPER</td>
</tr>
<tr>
<td>49 Participants</td>
<td>INFN participation: LNF-BA-CT-CA-FE-GE-MI-PV-RM2-TO-TS</td>
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**Design studies:**

<table>
<thead>
<tr>
<th><strong>EURISOL DS:</strong></th>
<th><strong>EUROpean Isotope Separation On-Line Radioactive Ion Beam Facility (515768-RIDS)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>15%</td>
<td>SPES, EXYCT, N2P, FIESTA, COSE (V), PI32 (IV), GAMMA, NA31, PRISMA2, NTOF, NUCLEX,</td>
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<tr>
<td>20 Participants</td>
<td>INFN participation: LNL-LNS-PI-BA-NA</td>
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<tr>
<th><strong>DIRAC-secondary Beams:</strong></th>
<th><strong>Internal Target experiment with highly energetic stored and cooled beams at the International Facility for Antiproton and Ion Research FAIR (515873-RIDS)</strong></th>
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<tr>
<td>2.4%</td>
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<tr>
<td>33 Participants</td>
<td>INFN participation: LNS- FE-GE-PV</td>
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<tr>
<td>Task</td>
<td>Leadership</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------</td>
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<tr>
<td><strong>Task 1:</strong> Management</td>
<td>GANIL</td>
</tr>
<tr>
<td><strong>Task 2:</strong> Multi MW Target Station</td>
<td>CERN</td>
</tr>
<tr>
<td><strong>Task 3:</strong> Direct Target</td>
<td>CERN</td>
</tr>
<tr>
<td><strong>Task 4:</strong> Fission Target</td>
<td>INFN-LNL</td>
</tr>
<tr>
<td><strong>Task 5:</strong> Safety &amp; Radioprotection</td>
<td>CEA</td>
</tr>
<tr>
<td><strong>Task 6:</strong> Heavy Ion Accelerator Design</td>
<td>GANIL</td>
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<tr>
<td><strong>Task 7:</strong> Proton Accelerator Design</td>
<td>INFN-LNL</td>
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<td><strong>Task 8:</strong> SC Cavity Development</td>
<td>CNRS/IN2P3</td>
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<tr>
<td><strong>Task 9:</strong> Beam Preparation</td>
<td>JYVASKYLA</td>
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<td><strong>Task 10:</strong> Physics and Instrumentation</td>
<td>U-LIVERPOOL</td>
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<tr>
<td><strong>Task 11:</strong> Beam Intensity Calculations</td>
<td>GSI</td>
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<tr>
<td><strong>Task 12:</strong> Beta Beams Aspects</td>
<td>CERN</td>
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</tbody>
</table>
8 World-class facilities

- UCL-CRC (B)
- GANIL (F)
- GSI (D)
- INFN-LNL (I)
- JYU-JYFL (FIN)
- RUG-KVI (NL)
- ECT* (EUR)
- CERN-ISOLDE (EUR)

11 Joint Research Activities

Development of:
- Detectors
- Integrated Electronics (ASIC)
- Ion sources
- Ion Traps
- Radiation-safety issues

7 Networks

Future cooperations
Pooling of resources
Stimulating complementarity
Ensuring broad dissemination of results

Transnational Access Activities

Next generation RIB facilities

Project Coordinator: Alex Mueller
Managing Institution: GSI Darmstadt
45-Participants 78-Institutions 27-Countries

1/01/05 – 31/12/08
~ 14 M€
No direct funding for the Networks

CARINA - EWON - PANSI3 - SHE - TNET
Transnational Access Activity
LNL-LNS-(LNGS-LUNA) → Heavy-ion beams 100 keV*A - 100MeV*A Nuclear Physics Facilities and Interdisciplinary and Applied Physics Facilities (Nuclear Astrophysics), ECT* → NP-Theory

JRA
AGATA → First \( \pi \) of the \( \gamma \)-tracking array
INTAG → Upgrade of PRISMA and new detectors
ISIBHI → Coupling of Microwave to PLasma for Electron Cyclotron resonance ion Sources
ECOS → High intensity stable beams
FAZIA → \( 4\pi \)-A-Z Identification Array around and below the Fermi energy

Networks
Gammapool → Coordination of the European resources used for high-resolution \( \gamma \)-ray spectroscopy.
NP and Culture Heritage → Coordination of initiatives and infrastructures
Preliminary timeline:

1. Brainstorming of ideas: GA and PCC meeting in spring 2007, possibly 19 March 2007 at Frankfurt; here also nomination of Editorial Committee (3-5 people) which will then be charged to prepare and launch open call for EURONS successor;

2. EURONS-EURISOL Town meeting: closure of proposal process; to be held between 17. and 22. September 2007 in Helsinki;

3. PCC meeting end of 2007 selection of proposals (possibly in Paris with EURISOL)

4. Editorial Committee charged with actual writing of proposal

5. Submission of proposal ~ end of March 2008
**I3-HP**

1/01/04 – 31/12/08

~ 17.4 M€

**Project Coordinator:** Carlo GUARALDO

**Managing Institution:** INFN (LNF)

49-Participants 138-Institutions 27-Countries

---

**9 World-class facilities**

- LNF (I)
- DESY - HERMES (D)
- FZJ-COSY (D)
- FZJ-NIC/ZAM (D)
- GSI (D)
- MAMI (D)
- ZIB (D)
- MAXLAB (SE)
- SVEDEBERG (TSL) (SE)

---

**12 Joint Research Activities**

- Compressed baryonic matter
- Computational (lattice) hadron physics
- Dimuon physics in heavy-ion collisions at LHC
- Production and decay of mesons and resonances
- Structure and dynamics of hadrons
- Exploring the unknown transverse spin structure of the Nucleon

---

**Development of:**

- Future data acquisition system
- Fast compact EM calorimeters
- European tagged photon facilities
- High speed gas detectors with integrated electronics
- Generalised parton distributions
- High luminosity hypernuclear gamma spectroscopy
- High luminosity internal targets for storage rings
- Polarized nucleon targets for Europe
- Ring imaging Cherenkov counters for particle identification
- Silicon drift detectors for X-ray spectroscopy
- Novel radiation hard CVD diamond Detectors
- Advanced TOF detection systems

---

**7 Networks**

- Compressed baryonic matter
- Computational (lattice) hadron physics
- Dimuon physics in heavy-ion collisions at LHC
- Production and decay of mesons and resonances
- Structure and dynamics of hadrons
- Exploring the unknown transverse spin structure of the Nucleon

---

**Transnational Access Activities**

- 49-Participants
- 138-Institutions
- 27-Countries
Transnational Access Activity

LNF → high luminosity DAΦNE ϕ-factory, and facilities for particle and nuclear physics (rare kaon decays, standard model, hyper-nuclear physics, exotic atoms), test beams, synchrotron light and accelerator developments.

ECT* → NP-Theory

JRA

- Frontier detector systems for photon detection
- Future GEM based tracking detectors
- Polarisation Observables in Hadron Physics
- Amplitude analysis for high precision hadron spectroscopy
- Structure studies with spin oriented nucleons and nuclei
- Transport theory for FAIR energies
- Detection system for nucleon time-like form factors
- Cherenkov imaging counters for high luminosity and high precision experiments

Networks

- EtaPrimeNet
- Soft and hard process in heavy ion collisions
- Dimuon-net continuation
- HadronTH
- Exploring the Space-Time Dynamics of Hadronization
- Transverse nucleon structure
Preliminary timeline:

1. Management Arrangement (Coordinator and SC) (7/2007)
2. First Call launched by the SC (8/2007)
3. First plenary meeting and presentation to NuPECC (10/2007)
4. HP-Steering Committee Second Call for Financial aspects (11/2007)
5. Second plenary meeting and assessment by NuPECC (01/2008)
7. Third plenary meeting and presentation of the proposal to the Community (3/2008)

8. Submission to EC (4/2008)
**NUPNET**
(2008-2010)

<table>
<thead>
<tr>
<th></th>
<th>INFN ROLE IN NUPNET</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LEADERSHIP</td>
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<tr>
<td><strong>TASK 1:</strong> MANAGEMENT</td>
<td>CNRS/IN2P3 (F)</td>
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<tr>
<td><strong>TASK 2:</strong> EXCHANGE OF INFORMATION</td>
<td>BMBF (D)</td>
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<tr>
<td><strong>TASK 3:</strong> ROADMAP FOR FUNDING INFRASTRUCTURES</td>
<td>INFN (I)</td>
</tr>
<tr>
<td><strong>TASK 4:</strong> LAUNCHING OF JOINT CALLS</td>
<td>SPAIN</td>
</tr>
</tbody>
</table>

**WRITING GROUP:** S. GALES *(COORDINATOR)*, J. BENLLIURE (SPAIN), A. BRACCO (INFN), B. FULTON (NUPECC), W. HENNING (GSI), A. MAJ (POLAND)
# Construction of New Facilities

## SPIRAL2

**Role in SPIRAL2**

<table>
<thead>
<tr>
<th>Leadership</th>
<th>Participation</th>
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<tbody>
<tr>
<td>GANIL (F)</td>
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<tr>
<td>INFN (I)</td>
<td>INFN</td>
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**Tasks**

- **Task 1:** Management
- **Task 2:** Solid Neutron Converter

**Other Tasks:** To be defined

## FAIR

**Role in FAIR**

<table>
<thead>
<tr>
<th>Leadership</th>
<th>Participation</th>
</tr>
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<tbody>
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<td>BMBF (D)</td>
<td>???</td>
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</table>

**Tasks**

- **Task 1:** Management

**Other Tasks:** To be defined

## DIRAC

The step following the design study not yet defined
CAPACITIES → DESIGN STUDIES

PROPOSALS ARE BEING PREPARED FOR FAIR INSTRUMENTATIONS:
AIC, FLAIR, PAX

IDEAS

PEOPLE

POLICY DECIDED ON NATIONAL BASIS
Rappresentante legale del Contraente ed individuazione del Team leader
(Person responsible for the work)

Contract Preparation Forms

EUROPEAN COMMISSION
Framework Programme on Research, Technological Development and Demonstration

INFORMATION ON PARTICIPANTS 2 OF 3 (ONE FORM PER PARTICIPANT)

Administrative official authorised to the contract
Name: Petronio
Title: Dr
First name(s): Roberto
Sex (Female / Male): Male
Phone: +39 06 6840031
Fax: +39 06 68307924
Address: presidenza@prisci.infn.it

Second administrative official authorised to the contract
Name: 
Title: 
First name(s): 
Sex (Female / Male): 
Phone: 
Fax: 

Main department/faculty/institute/laboratory carrying out the work
Department/Faculty: INFN - Laboratori Nazionali di Legnaro
Institute/lab oratory name: 
Address (if different from legal address): 
PO-Box: 
Postal Code: 35020
Street name and number: Via dell'Università, 2
Town: Legnaro (Padova) Country: ITALY

Authorised contact person / Team Leader
Name: FORTUNA
Title: Dr
First name(s): Graziano
Phone: +39 06 5068508
Fax: +39 06 8068514
E-mail: graziano.fortuna@inf.infn.it

Other major department/faculty/institute/laboratory carrying out the work (if necessary)
Department/Faculty: 
Institute/lab oratory name: 
Address (if different from legal address): 
PO-Box: 
Postal Code: 
Street name and number: 
Town: 
Country: 

Previously submitted similar proposals or signed contracts? (Yes/No) No
If Yes, programme name(s) and year: 
If Yes, proposal or contract number(s): 

Optional section: If requested during negotiation, please complete the following table:

Does your project include socio-economic research activities? 
If Yes, what is the estimated allocated total cost of resources and means that address these activities? (in Euros): 0

Does your project include foresight methods?

How many person-months of the tasks in this project are allocated to scientists with a prevailing educational background in social, economic and/or human sciences?
Responsabilità contrattuali nei confronti della Commissione Europea

8- Contractor’s Certificate

We certify that:
- the costs declared above are directly related to the resources used to reach the objectives of the project;
- the receipts declared above are directly related to the resources used to reach the objectives of the project;
- the costs declared above fall within the definition of eligible costs specified in Articles II.19, II.20, II.21, II.22 and II.25 of the contract, and, if relevant, in Annex III and Article 9 (special clauses) of the contract;
- the receipts declared above fall within the definition of receipts specified in Article II.23 of the contract;
- the interest generated by the pre-financing declared above falls within the definition of Article II.27 of the contract;
- the necessary adjustments, especially to costs reported in previous Financial Statement(s) per Activity, have been incorporated in the above Statement;
- the above information declared is complete and true;
- there is full supporting documentation to justify the information hereby declared. It will be made available at the request of the Commission and in the event of an audit by the Commission and/or by the Court of Auditors and/or their authorised representatives.

<table>
<thead>
<tr>
<th>Contractor’s Stamp</th>
<th>Name of the Person responsible for the work</th>
<th>Name of the duly authorised Financial Officer</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Date</td>
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<tr>
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