NuPECC

Handbook

2004

Fifth Edition

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Introduction

The fourth edition of the NuPECC Handbook on "International Access to Nuclear Physics Facilities in Europe" was published in December 1998, exactly six years ago. In the meanwhile, many developments have occurred on the nuclear physics landscape in Europe. Some facilities have been upgraded and others have ceased to exist. Also directors, facility managers and contact persons have in many cases been replaced during this period. With NuPECC's stated objectives to promote collaboration in nuclear science through the promotion of nuclear physics and its trans-disciplinary use and to define a network of complementary facilities within Europe and encourage optimisation of their usage, NuPECC decided it was time to have an update of the NuPECC Handbook to provide the European nuclear physics community with the most recent information on nuclear physics facilities in Europe, and how to apply for their usage.

This fifth edition of NuPECC Handbook has an extensive section on facilities in Europe giving details on accelerators, instrumentation, and coordinates of directors, facility managers and contact persons. Other relevant information for outside users is given. Another section provides information on funding agencies and research councils as well as nuclear physics institutes in member countries of NuPECC.

NuPECC is an Expert Committee of the European Science Foundation (ESF). The terms of reference of NuPECC and its current members are given in the following pages.

Muhsin Harakeh
Chairman of NuPECC

Gabriele-Elisabeth Körner
Scientific Secretary of NuPECC

European Science Foundation

The European Science Foundation is an association of 76 member research councils, academies and institutions devoted to basic scientific research in 29 countries. The ESF brings European scientists together to work on topics of common concern, to co-ordinate the use of expensive facilities, and to discover and define new endeavours that will benefit from a co-operative approach.

The scientific work sponsored by ESF includes basic research in the natural sciences, the medical and biosciences, the humanities and the social sciences.

The ESF links scholarship and research supported by its members and adds value by co-operation across national frontiers. Through its function as a co-ordinator, and also by holding workshops and conferences and by enabling researchers to visit and study in laboratories throughout Europe, the ESF works for the advancement of European science.

European Science Foundation

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http://www.esf.org

Terms of Reference for Nuclear Physics European Collaboration Committee (NuPECC), an ESF Expert (previously Associated) Committee

as mutually agreed upon on 23 April 1997

NuPECC is an Expert (previously Associated) Committee of the European Science Foundation (ESF).

The Committee is supported by its Subscribing Institutions which are in general Member Organisations of the ESF involved in nuclear science and research or research facilities. The Terms of Reference of the Committee and eventual changes are agreed by the ESF Assembly. Beyond the Terms of Reference of NuPECC, the Statute of the ESF shall apply where relevant.

Task

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 research groups within Europe and particularly those from countries linked to the ESF.

In pursuing this objective the Committee shall

- define a network of complementary facilities within Europe and encourage optimisation of their usage;
- provide a forum for the discussion of the provision of future facilities and instrumentation; and
- 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.

Membership

The Members of the Committee shall be drawn among experts active in nuclear science and research and proposed by the Subscribing Institutions to NuPECC. They shall be appointed by the ESF Executive Council in general for a three-year period, after consultation between the Committee, the ESF and the Subscribing Institutions of NuPECC. The Committee Chairman shall be appointed by the ESF Assembly. The distribution of Members across the different European countries and organisations should aim to reflect the activities in nuclear science and research in the different scientific fields and the different countries. The ESF Executive Council may appoint one of its own Members as a Liaison Member. The ESF Scientific Secretary primarily concerned with nuclear science and nuclear research facilities shall act as the Liaison Secretary of ESF and attend the Committee's meetings to assist in its deliberations. The relevant ESF Standing Committee and NuPECC may appoint liaison members.

The Subscribing Institutions of the Committee shall be involved in nuclear science and research or in multi-national nuclear research facilities in Europe and generally belong to the Member Organisations of the ESF. Beyond these, a European institute or agency can be accepted as a Subscribing Institution of NuPECC if its statutes are consistent with those of NuPECC and the ESF.

New Subscribing Institutions shall be appointed by the ESF Executive Council, after consultation with the Committee and the existing Institutions. The term of Subscribing Institutions shall continue as long as the association of the Committee with the ESF is in effect. An Institution may withdraw from the Committee at the end of the financial year immediately following that in which it gives notice of the withdrawal.

Modus Operandi

The Committee shall coordinate its work through plenary meetings on a regular basis, at least annually, at which all business items shall be decided. The Committee may set up a work plan for its term.

The Committee may appoint its own Scientific Secretary and may set up a charter for its modus operandi.

Finance

Inflow

The Subscribing Institutions of NuPECC shall contribute to the basic budget of the Committee which shall cover its operational activities including the remuneration of the Committee's Scientific Secretary and its liaison costs with the ESF. The contribution of every Subscribing Institution shall depend on the number of Committee Members it nominates and supports. Members' travel costs for attending the Committee's regular plenary meetings shall be reimbursed directly by the respective Subscribing Institutions.

In agreement with the ESF, the Committee may receive specific contributions from third parties or ad hoc contributions from Subscribing Institutions or from ESF Member Organisations. Changes in the basic budget shall be approved by the ESF Board.

Financial modus operandi

The Committee shall agree on an annual budget plan which is within the confines of the inflow from the Subscribing Institutions and/or third parties,and which takes into account the current economic environment. The Committee shall appoint a Treasurer who shall oversee its budget in close consultation with the ESF.

The financial commitments for the Committee's work shall be made by the ESF. The NuPECC budget is held on a special account established and operated by the ESF.

Reporting and Advising

The Committee shall report on a regular basis to the ESF and the relevant ESF Standing Committee(s).

In providing advice and making recommendations to external bodies, the Committee shall act responsibly and independently. It shall, as a constituent organ of the ESF, ensure, through the ESF Liaison Secretary, that the ESF Board and the relevant ESF Standing Committee(s) are consulted before the disclosure of such advice.

Periodic Review; Renewal of the Committee's Association and Term

The ESF Executive Council shall periodically — every five years at the latest — initiate a review of the work of the Committee and its association with the ESF. Every renewal of the Committee's term shall be agreed by the ESF Assembly.

Membership of NuPECC

AMSLER Claude	Zürich (Switzerland)
BLAIZOT Jean-Paul	Trento (Italy)
BRESSANI Tullio	Turin (Italy)
DOBEŠ Jan	Řež (Czech Republic)
EIRÓ Ana Maria	Lisbon (Portugal)
FORTUNA Graziano	Legnaro (Italy)
FULTON Brian	York (United Kingdom)
GOUTTE Dominique	Caen (France)
GUILLEMAUD-MUELLER Dominique	Orsay (France)
GUSTAFSSON Hans-Åke	Lund (Sweden)
HAAS Bernard	Gradignan (France)
HARAKEH Muhsin	Groningen (The Netherlands)
HENNING Walter	Darmstadt (Germany)
HUYSE Mark	Leuven (Belgium)
JASTRZEBSKI Jerzy	Warsaw (Poland)
JULIN Rauno	Jyväskylä (Finland)
KRASZNAHORKAY Attila	Debrecen (Hungary)
LEEB Helmut	Wien (Austria)
LØVHØIDEN Gunnar	Oslo (Norway)
POVES Alfredo	Madrid (Spain)
RIISAGER Karsten	Aarhus (Denmark)
ROSNER Günther	Glasgow (United Kingdom)
STRÖHER Hans	Jülich (Germany)
VAN DER STEENHOVEN Gerard	Amsterdam (The Netherlands)
WAMBACH Jochen	Darmstadt (Germany)

Scientific Secretary:

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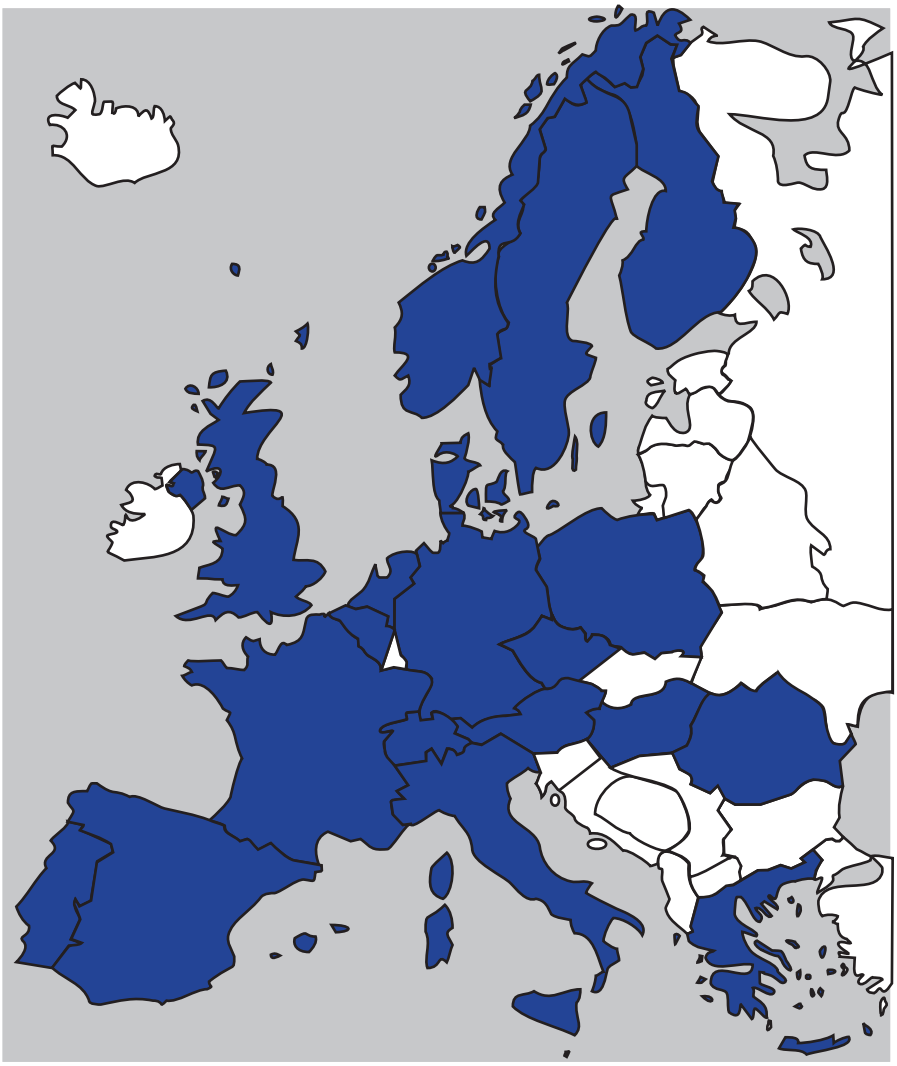
http://www.nupecc.org



Member Countries of NuPECC (in blue)

Access to European Facilities

This information is also available on the World Wide Web under the homepage:

http://www.nupecc.org/
→ Publications

For changes and updates please notify:

Sissy.Koerner@ph.tum.de

ASSERGI LNGS *(Italy)*

Laboratori Nazionali del Gran Sasso
Istituto Nazionale di Fisica Nucleare
S.S. 17 bis, km.18+910
67010 Assergi (L'Aquila)
Phone: +39 08 62 43 71
Fax: +39 08 62 43 72 18
WWW: http://www.lngs.infn.it

Director:

Eugenio Coccia
Phone: +39 08 62 43 72 31

Contact Person for Foreign Users:

M. Junker (LUNA)
E-Mail: matthias.junker@lngs.infn.it
M. Laubenstein (Low Level Laboratory)
E-Mail: matthias.laubenstein@lngs.infn.it
F. Chiarizia (Research Division Secretary)
E-Mail: fausto.chiarizia@lngs.infn.it

Facility:

50 kV and 400 kV accelerators (LUNA) with very small energy spread, excellent long term stability and high beam current even at low energy. Ultra low radioactivity levels laboratory.

Procedure to Apply for Beamtime:

All proposals are screened on the basis of scientific merit by the LNGS Scientific Committee.

Programme Advisory Committee (current membership):

0 in-house, 4 national, 5 international members.

Main Instrumentation for Nuclear Physics Experiments:

LUNA: 50kV and 400 kV electrostatic accelerators, windowless gas target, BGO summing detector and High Purity Germanium detector with low intrinsic background.

Main Fields of Nuclear Research:

Nuclear reactions of astrophysics interest.

Main Fields of Other Research:

Neutrino Physics.
Dark Matter Search.
Rare Decays.

Accommodation:

7 double rooms (14 beds).

Transportation:

Public Bus Service from and to L'Aquila every hour.

Future Developments (under construction):

Enlargement of the low background levels laboratory.

BONN ELSA *(Germany)*

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der Universität Bonn
Nußallee 12
D-53115 Bonn
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WWW: http://pi.physik.uni-bonn.de/

Director:

Prof. Dr. F. Klein
Phone: +49 228 73 2340
E-Mail: klein@physik.uni-bonn.de

Contact Person for Foreign Users:
Director

Facility:

Storage and stretcher ring **ELSA** with two pulsed linear accelerators and booster synchrotron producing polarised (1 nA) and unpolarised (up to 10 nA) electron beams from 0.5 to 3.5 GeV with high duty factor. Linearly and circularly polarised photons for hadron physics experiments. Storage of electrons (up to 200 mA) for Synchrotron Radiation experiments.

Procedure to Apply for Beamtime:

Contact the director.

Programme Advisory Committee (current membership):

3 national, 6 international members, common for MAMI and ELSA.

Main Instrumentation for Nuclear Physics Experiments:

ELSA accelerator with polarised electron source,
Photon taggers with goniometers,
Polarised solid state proton and neutron targets,
Large solid angle spectrometer with Crystal Barrel.

Main Fields of Nuclear Research:

Electron- and photon-induced reactions,
Photoproduction of Mesons,
Baryon Spectroscopy,
In-Medium Properties of Hadrons.

Main Fields of Other Research:

Application of Synchrotron Radiation:
X-Ray Absorption and Flourescence Spectroscopy, Microfabrication.

Accommodation:

Hotels in Bonn, guest rooms.

Transportation:

Public transport.

Bucharest Magurele *(Romania)*

"Horia Hulubei" -
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and Nuclear Engineering (IFIN-HH)
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077125 ROMANIA
WWW: http://www.nipne.ro/

Director:

N.V. Zamfir
Phone: +40 21 4042301
Fax: +40 21 4574440
E-Mail: zamfir@tandem.nipne.ro

Contact Person for Foreign Users:

Gh. Cata-Danil
Phone: +40 21-4042328
E-Mail: cata@tandem.nipne.ro

Facility:

Center for Research with Accelerated Ions (CRAI)
Tandem FN, maxim. 9MV terminal voltage
ECR standalone 14GHz ion source

Procedure to Apply for Beamtime:

Contact Gh. Cata-Danil or a research group from CRAI.

Programme Advisory Committee (current membership):

There is no PAC.

Main Instrumentation for Nuclear Physics Experiments:

FN Tandem Van de Graff accelerator
ECR standalone ion source

Main Fields of Nuclear Research:

Nuclear Structure Atomic Physics

Main Fields of Other Research:

Application of Nuclear Techniques (AMS, PIXE, PIGE, RBS, ERDA, NRA)

Accommodation:

Guest house on site

Transportation:

Bus connections to Bucharest (approx. 15km to downtown).

CAEN GANIL *(France)*

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Contact Person for Foreign Users:

V. Vandevoorde
Phone: +33 231 45 47 07
E-Mail: vandevoorde@ganil.fr

Facility:

Medium energy heavy ions from 4 to 15 MeV/A; high energy ions: 10^{13} to 10^{9} pps for C to U at 95 to 25 MeV/A; macrostructure: 7 to 13.3 MHz, microstructure 1 ns; full energy beam in time sharing mode on two target stations; medium energy beam in parallel. Radioactive beams produced in-flight or by ISOL method and reaccelerated by a cyclotron (SPIRAL facility).

Procedure to Apply for Beamtime:

Address a proposal to the contact person (coordinateur@ganil.fr) or to the director.
Forms available from contact person or from Web page.
Public presentation of proposals. PAC meets twice a year.

Programme Advisory Committee (current membership):

1 in-house, 5 national, 6 international members.

Main Instrumentation for Nuclear Physics Experiments:

4π germanium array (EXOGAM).
High acceptance, variable mode spectrometer (VAMOS).
High resolution, energy loss magnetic spectrometer (SPEG).
Fragment/recoil separator with velocity filter (LISE3).
Large scattering chamber for 4π detectors (NAUTILUS).
4π neutron detector (ORION).
Charged-particle 4π multidetector (INDRA).

Main Fields of Nuclear Research:

Nuclear structure.
Exotic nuclei.
Reactions induced by secondary beams.
Nuclear dynamics.
Hot nuclei.
Giant resonances.

Main Fields of Other Research:

Excitation and charge exchange in atoms.
Energy dissipation and relaxation in solids.
Ion-induced modifications in material.
Microporous membranes.
Simulation of spatial environment for electronic components.

Accommodation:

Guest house (40 furnished rooms) in the facility area.

Transportation:

Buses and tramway towards the town and station (3 km from the laboratory), taxi.

Future Developments (under construction):

SPIRAL2: a dedicated facility for production of high intensity neutron and proton rich radioactive beams using a new high power superconducting linear accelerator (LINAG) as a driver is in the detailed technical design phase. The fission of ^{238}U by fast neutrons (up to 10^{14} fissions/s) as well as other light and heavy ion induced reactions will be used. The ISOL method and the existing cyclotron (CIME) will provide the users with radioactive beams in the energy range 2.7–25 MeV. A low energy beam (in the keV region) will be available simultaneously in the dedicated experimental area.

CATANIA LNS *(Italy)*

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WWW: http://www.lns.infn.it

Director:

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E-Mail: migneco@lns.infn.it

Contact Person for Foreign Users:

M. Lattuada
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E-Mail: lattuada@lns.infn.it

Facility:

A 15 MV Tandem accelerator provides up to 200 nA beams with energy of 10 to 200 MeV, depending on the beam mass. A Superconducting Cyclotron provides ion beams in a wide range of masses with maximum energies from 25 A MeV for U to 100 A MeV for fully stripped light ions.

Procedure to Apply for Beamtime:

Address a proposal to the Secretariat of the Scientific Committee. Information and forms available on Web server. The Committee meets at least once per year. Oral presentation of the proposals during the meeting is required.

Programme Advisory Committee (current membership):

2 national, 5 international members.

Main Instrumentation for Nuclear Physics Experiments:

MEDEA + MULTICS: a BaF_2 crystall ball of 180 elements for and light particle detection, coupled to a forward wall of 64 (gas chamber + Si + CsI) telescopes for fragment detection.
TRASMA: a multidetector suitable for simultaneous detection of particles and gamma rays.
CHIMERA: a 4π charged particle detector, consisting of 1200 (Si + CsI) telescopes.

CICLOPE: a cylindrical (4 m diameter, 6 m long) scattering chamber designed for intermediate energy experiments.
CT 2000: a 2m diameter multipurpose scattering chamber specially suitable for low energy experiments.

Main Fields of Nuclear Research:

Structure of light exotic nuclei. Reaction mechanisms around the Coulomb barrier. Nuclear astrophysics. High spin states. Giant resonances. Multifragmentation. Nuclear equation of state. Phase transitions.

Main Fields of Other Research:

Solid state physics. Heavy ion induced modifications on superconductors. Ion beam lithography. Heavy ion induced damage on biogical samples. High intensity ion sources. Non-destructive analysis of cultural heritage samples. Proton therapy. Cosmic neutrinos.

Accommodation:

9 double guest rooms in the Laboratory building

Transportation:

Local buses (432, 457) stop just in front of Laboratory.

Future Developments (under construction):

EXCYT: a radioactive beam facility (ISOL-type) based on the Superconducting Cyclotron as primary accelerator and the Tandem as post-accelerator (first beams of ^{8,9}Li in 2005).
MAGNEX: a large angle and momentum acceptance magnetic spectrometer (ready in 2005).

DARMSTADT S-DALINAC *(Germany)*

Institut für Kernphysik
Technische Universität Darmstadt
Schlossgartenstrasse 9
D-64289 Darmstadt
WWW:
http://linac.ikp.physik.tu-darmstadt.de/

Facility:

Superconducting electron linear accelerator (S-DALINAC) producing c.w. electron beams from 3 to 130 MeV.
Free Electron Laser (FEL) operating at wavelengths between 2.5 and 10 μm.

Director:

A. Richter
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Fax: +49 61 51 16 43 21
E-Mail: Richter@ikp.tu-darmstadt.de

Contact Person for Foreign Users:

A. Richter
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E-Mail: Richter@ikp.tu-darmstadt.de

Procedure to Apply for Beamtime:

Write to the Director or contact any member of the in-house groups working at the S-DALINAC for planning an experiment in collaboration.

Programme Advisory Committee (current membership):

There is none.

Main Instrumentation for Nuclear Physics Experiments:

Nuclear resonance fluorescence facility with three 100% efficient Germanium detectors.
Large solid angle magnetic spectrometer of the QCLAM type for single arm (e, e') and coincidence experiments of the form $(e, e'x)$ with x=n,p,... .
Solid State and neutron counter arrays.

Energy loss spectrometer for (e, e') at high resolution.
Facility for inelastic electron scattering experiments under 180°.

Main Fields of Nuclear Research:

Photon and electron scattering for the study of elementary nuclear excitation of low multipicity.
Electric and magnetic giant resonances.
Nuclear astrophysics.
Electric and magnetic polarizabilities of the nucleon determined through Compton scattering at low photon energies.

Main Fields of Other Research:

Superconducting RF and accelerator physics.
Simulation of quantum chaos phemomena in superconducting microwave resonators.

Accommodation:

Guest room and nearby hotels.

Transportation:

Public transportation.

Future Developments (under construction):

High-pressure hydrogen gas target.
Source of polarized electrons.
Silicon detector ball for $(e, e'x)$ experiments.
High-resolution photon tagger.
Magnet system for electron scattering near 0°.
Low-energy large solid angle neutron detector system.

DARMSTADT GSI *(Germany)*

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Director:

W. F. Henning
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Contact Person for Foreign Users:

K.-D. Groß
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E-Mail: K.D.Gross@gsi.de

Facility:

UNILAC: heavy ion linear accelerator to accelerate particles of H to U up to 14 MeV/u.
SIS: heavy-ion synchrotron to accelerate particles of H to U up to 2 GeV/u with 1 cycle/s.
ESR: heavy ion storage ring to store particles of H to U at energies up to 0.8 GeV/u.
Pion-beam facility to provide pion beams in the momentum range 0.5 to 2.5 GeV/c.

Procedure to Apply for Beamtime:

Submission of a "Proposal for an experiment at GSI" (the corresponding forms can be drawn from the WWW; call for proposals and deadline dates are announced on the WWW; 2 PAC meetings per year).

Programme Advisory Committee (current membership):

12 external members (3 national, 9 international)

Main Instrumentation for Nuclear Physics Experiments:

- *Experimental Facilities for nuclear structure research:* the velocity filter SHIP for the separation and detection of super-heavy elements; nuclear chemistry set-up(s) to study the chemical behavior of the heaviest elements; SHIPTRAP, a Penning trap behind the SHIP spectrometer for nuclear structure and atomic physics studies on very heavy nuclei/atoms; a large projectile fragment separator (FRS) for

the production and in-beam separation of nuclei far off stability; the cooler-storage ring ESR, equipped with powerful stochastic and electron cooling devices, an internal gas-jet target, a collinear laser spectroscopy system and various X-ray and position sensitive particle detectors, for internal ring experiments; further equipment comprises Schottky mass spectroscopy as well as time-of flight mass spectroscopy for systematic mass measurements on short-lived unstable nuclei (down to a few hundred microseconds); a 162-element NaI-crystal ball for spectroscopy of exotic and rare nuclei; the RISING (former Euroball) Collaboration has moved its Ge detector array to GSI for about the next 2 years (until 2005/6); the magnetic spectrometer ALADIN and the large neutron detector LAND to study nuclear (multi)-fragmentation, high-lying collective states, and complete kinematics break-up reactions of e.g. halo nuclei.

- *Experimental facilities for hadron physics and nuclear matter research:* the 4π-detector (FOPI), allowing a complete momentum analysis of all charged particles emerging from the reaction zone, to study the properties of compressed, hot hadronic matter; the High Acceptance Di-Electron Spectrometer (HADES) to study the properties of vector mesons in high density hadronic matter; a detector test facility offering electron, pion and proton beams up to 2.5 GeV/c

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Main Fields of Nuclear Research:

Superheavy elements; exotic nuclei far off stability; nucleus-atomic shell interactions; nuclear reactions up to relativistic energies; equation-of-state for nuclear matter; investigation of hot, compressed and highly excited hadronic matter; medium modification of hadrons in normal and dense nuclear matter.

Main Fields of Other Research:

Atomic and plasma physics; materials research; biophysics and tumor therapy.

Accommodation:

Guest house with 28 guest rooms located at the laboratory, in addition several guest rooms and small apartments in a GSI-owned housing about 1 km from the laboratory.

Transportation:

Train station Darmstadt (8 km from GSI). Frankfurt Airport: 25 km from GSI (train connection with Wixhausen via Frankfurt Main Station).

DEBRECEN *(Hungary)*

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Director:

R.G. Lovas
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E-mail: rgl@atomki.hu

Contact Person for Foreign Users:

F. Tárkányi
Phone: +36 52 417266/1318
E-mail: tarkanyi@atomki.hu

Facility:

Isocronous cyclotron (K=20) for light ions, p,d, ^{3}He, α and intensities of maximum 50 mA. Energies from 3 MeV (p) to 27 MeV for ^{3}He paricles.

Procedure to Apply for Beamtime:

Informal.

Programme Advisory Committee (current membership):

There is no PAC.

Main Instrumentation for Nuclear Physics Experiments:

Split pole magnetic spectrograph.
CLOVER type HPGe detector with BGO shield and other HPGe detectors.
Superconducting solenoid, and mini orange magnetic electron spectrometers.
Ionization chambers and PPAC detectors for fission fragments.
Scattering chamber with Si particle telescopes.
Multi-detector array for high energy nuclear e^+e^- pair spectroscopy.

Main Fields of Nuclear Research:

Spectroscopy of super- and hyperdeformed states in the actinide region.
Study of fission barriers and the fission process.
Study of α-optical model potential for nuclear astrophysics.
Study of γ-decay of giant resonances.

Main Fields of Other Research:

Production of radioactive isotopes for a PET camera.
Production of long lived radioactive isotopes for radioactive beams used abroad.
Thin layer activation. Nuclear data measurements. Neutron and gamma induced mutations.
Radiation hardness tests of electronic units.

Accommodation:

Guest rooms at the institute and hotels in town

Transportation:

Public transportation. The institute is located in the town. Connection: Railway, local airport.

Future Developments (under construction):

FRASCATI LNF *(Italy)*

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Fisica Nucleare (INFN)
Laboratori Nazionali di Frascati
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WWW: http://www.lnf.infn.it/

Director:

Mario Calvetti
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E-Mail: dirlnf@lnf.infn.it

Contact Person for Foreign Users:

Carlo Guaraldo
Phone: +39 06 94 03 23 18/23 17
Fax: +39 06 94 03 25 59
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Facility:

DAΦNE: storage ring, e^+e^-, 1020 MeV c.m. energy, luminosity $5 \times 10^{32}\mathrm{cm}^{-2}s^{-1}$, circumference 97.69 m, maximum total average current 5 A, bunch length σ_Z 3 cm, number of bunches $1-120$, $2.2 \times 10^2 s^{-1}$ K^- K^+ pairs at L=1.2×10^{32} $\mathrm{cm}^{-2}\mathrm{s}^{-1}$, from Φ decay.

Procedure to Apply for Beamtime:

Send a proposal to the contact person.

Programme Advisory Committee (current membership):

LNF Scientific Committee: 1 in-house, 6 international members.

Main Instrumentation for Nuclear Physics Experiments:

FINUDA spectrometer.
SIDDHARTA setup.

Main Fields of Nuclear Research:

Hypernuclear spectroscopy with stopped K^-.
Low energy K^--nucleus interaction.
Kaonic atoms research.

Main Fields of Other Research:

Elementary particle physics.
Research with synchrotron light.
Gravitational waves research.
Theoretical physics.
Accelerator physics.
FEL research.
Detector development.

Accommodation:

8 Guest rooms (20 Beds).

Transportation:

Railway station "Tor Vergata" at walking distance (line Rome−Cassino). Frascati main railway station (3km from the laboratory) INFN buses at fixed times connect the laboratory to the station "Anagnina" of Rome Metro line A.

GARCHING-MLL *(Germany)*

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für Kern- und Teilchenphysik
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D-85748 Garching
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Director:

Reiner Krücken
Phone: +49 89 289 124 33
Fax: +49 89 289 124 35
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Contact Person for Foreign Users:

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Facility:

MP tandem with terminal voltage of up to 15 MV producing H to U including polarised p and d, DC or bunches of 1 ns to 2 ms with frequencies of 5 MHz.
Post accelerator SchweIN for Ni, Ge, 1 pnA, 5.75 MeV/u, bunched.

Procedure to Apply for Beamtime:

Contact one of the in-house groups or the directors office.

Programme Advisory Committee (current membership):

3 in-house, 5 national, 1 international member(s).

Main Instrumentation for Nuclear Physics Experiments:

Q3D magnetic spectrograph with various light and heavy ion detectors.
SNAKE (Superconducting Nanoscope for Applied nuclear (Kern-)physics Experiments.
Ge gamma-ray detector arrays.
Conversion electron spectrometer.
Gas filled magnet for AMS.
High resolution Penning Trap.

Neutron time-of-flight experiment.
Shielded laboratory for low-background experiments.

Main Fields of Nuclear Research:

Nuclear spectroscopy: structure of exotic nuclei, fission-isomer studies, g-factor measurements, high precision studies using transfer reactions.
Accelerator mass spectroscopy.

Main Fields of Other Research:

Instrumental developments for the fields of nuclear structure physics, hadron physics, particle-astrophysics and heavy-ion physics.
Material analysis: sub-μm 3D-hydrogen microscopy, high resolution ERD, thin layer analysis by ERD, interaction of ions with matter.
Medical applications: Radiobiology using focussed ion-beams, radiation effects in biological systemss, ion-implantation.

Accommodation:

A few guest rooms, near-by hotels.

Transportation:

Autobahn A9 (München-Nürnberg) to Garching-Nord.
U-Bahn U6 to Garching-Hochbrück and bus No. 291,
or S-Bahn S8 to Ismaning, and bus No. 230.

Future Developments (under construction):

GARCHING FRM-II *(Germany)*

FRM-II
Lichtenbergstraße 1 D-85748 Garching
Tel: +49 89 289 149 65
http://www.frm2.tu-muenchen.de/

Director:

Prof. Dr. Winfried Petry
Phone: +49 89 289 14965
Fax: +49 89 289 14995
E-Mail: winfried.petry@frm2.tum.de

Contact Person for Foreign Users:

Prof. Dr. Winfried Petry
Phone: +49 89 289 14965
Fax: +49 89 289 14995
E-Mail: winfried.petry@frm2.tum.de

Facility:

20 MW research reactor with a maximal thermal neutron flux density of 8×10^{14} $cm^{-2}s^{-1}$, 10 horizontal, 2 inclined and 1 vertical beam tubes. Cold neutron source, hot neutron source.

Procedure to Apply for Beamtime:

Proposals are submitted following a call for proposals, about 2 Programme Advisory Committee meetings per year.

Programme Advisory Committee (current membership):

Currently 1 PAC for all experiments (1 in-house, 9 national members), in the future several PACs for different fields of research are foreseen.

Main Instrumentation for Nuclear Physics Experiments:

MEPHYSTO - Measuring facility for nuclear and particle physics with slow neutrons.

Main Fields of Nuclear Research:

Production of long-lived superheavy nuclei.
Structure of exotic neutron-rich nuclei.
Gamma-ray spectroscopy of nuclei at high temperature.
Order-to-chaos transition in nuclei.
Fission fragment spectroscopy.

Main Fields of Other Research:

Neutron scattering for material science, biology, physics, chemistory.
Positron source for material science and other research.
Precision tests of the standard model of particle physics.
Measurement of the weak coupling constants of the neutron.
Test of T-symmetry.
Search for the electric dipole moment of the neutron.
High accuracy measurement of the neutron lifetime.
Production of medical isotopes.
Tumor therapy.

Accommodation:

A few guest rooms, near-by hotels.

Transportation:

Autobahn A9 (München-Nürnberg) to Garching-Nord.
U-Bahn U6 to Garching-Hochbrück and bus No. 291,
or S-Bahn S8 to Ismaning, and bus No. 230.

Future Developments (under construction):

Munich Accelerator for Fission Fragments (MAFF).
Mini-D_2 Source for Ultra-Cold Neutrons.
Prompt Gamma-ray Activation (PGA) Analysis and Gama-spectroscopy set-up.

GENEVE CERN-ISOLDE *(Switzerland)*

CERN-ISOLDE
CH-1211 Genève 23
Phone: +41 22 767 58 28
Fax: +41 22 767 89 90
WWW: http://isolde.cern.ch/

Director:

R. Aymar
Phone: +41 22 767 23 00
E-Mail: Robert.Aymar@cern.ch

Contact Person for Foreign Users:

Luis M. Fraile, *Scientific Co-ordinator*
Phone: +41 22 767 38 09
E-Mail: Luis.Fraile@cern.ch
Peter Butler, *Physics Group Leader*
Phone: +41 22 767 58 25
E-Mail: Peter.Butler@cern.ch
Mats Lindroos, *Technical Co-ordinator*
Phone: +41 22 767 38 59
E-Mail: Mats.Lindroos@cern.ch

Facility:

ISOLDE: Two isotope mass separators on-line for radioactive ion beam production, acceleration to 60 keV and mass separation. About 650 radioactive beams of 65 elements are distributed to more than 15 experimental setups.
REX-ISOLDE: Radioactive ion beam linear accelerator, trapping, cooling, charge breeding and post accelerating the exotic ISOLDE species up to 3.0 MeV/u.

Procedure to Apply for Beamtime:

Letter of intent (not mandatory) submitted to ISOLDE and nTOF Experiments Committee (INTC). Experiment Proposal to the INTC followed by a public oral presentation. General information on the ISOLDE Web site (http://isolde.cern.ch/).

Programme Advisory Committee (current membership):

INTC: 12 international members, 12 in-house ex-officio.

Main Instrumentation for Nuclear Physics Experiments:

· Several stations for decay spectroscopy including a Total Absorption gamma-ray Spectrometer (TAgS), a Silicon detector array (Si-Ball), etc

· Laser spectroscopy beamlines: COLLAPS, COMPLIS.
· Mass spectrometers: ISOLTRAP, MISTRAL.
· Trap for weak interaction experiments: WITCH.
· Dilution refrigerator for nuclear polarization: NICOLE.
· REX Post-accelerator to 3.0 MeV/u: REX-TRAP, REX-EBIS and REX-LINAC.
· Gamma-ray detector array MINIBALL

Main Fields of Nuclear Research:

Study of nuclear properties and exotic decays far from stability
Measurement of ground state properties: masses, moments, radii...
Studies using post-accelerated radioactive beams: Coulex, transfer reactions...

Main Fields of Other Research:

Atomic physics
Solid state physics
Biophysics and medicine
Particle physics and astrophysics

Accommodation:

Two hostels are available on the CERN site (238 single rooms, 75 double rooms).
E-mail: cern.hostel@cern. Booking details at http://housing-service.web.cern.ch

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Transportation:

By Air: From Geneva Airport take a taxi or a bus. Buses # *10, 18* or *28* connect with bus # *9-CERN* to the CERN main gate. Information on http://www.tpg.ch.
By train: Inter-city trains serve Geneva railway station. Take a taxi, or bus *9-CERN* from Geneva train station to CERN.
By car: CERN is on the "route de Meyrin", near to the St. Genis French border.

Future Developments (under construction):

Experimental hall extension for REX upgrade and solid state physics laboratory.
Radio Frequency Quadrupole for improved beam quality.
Electron Cyclotron Resonance ion source and highly charged ions beamline.

GRENOBLE ESRF GrAAL *(France)*

European Synchrotron
Radiation Facility
6, rue Jules Horowitz
BP220 38043 Grenoble CEDEX9,
France
Fax: +33 (0)4 76 88 20 20
WWW: http://www.esrf.fr
WWW: http://www.lnf.infn.it/nuclear

Facility:

Tagged and polarised photon beam with energy from 500 to 1500 MeV obtained through the Compton backscattering of laser light on the 6.04 GeV/c electrons of the ESRF storage ring.
Large solid angle detector with calorimetry and tracking.

Director:

W.G.Stirling
Phone: +33 (0)476 88 26 45
E-Mail: Stirling@esrf.fr

Contact Person for Foreign Users:

C. Schaerf Phone +39 06 72 59 45 61
E-Mail: Carlo.Schaerf@roma2.infn.it

Procedure to Apply for Beamtime:

Informal.

Programme Advisory Committee (current membership):

The Graal experimental programme is reviewed annually by the Commissione Scientifica Nazionale III of INFN.

Main Instrumentation for Nuclear Physics Experiments:

Tagged photon beam for nuclear and hadronic physics experiments with variable energy from 500 to 1500 Mev and with high degree of linear and circular polarisation.
Large solid angle (0.9 x 4π) BGO calorimeter with cylindrical simmetry segmented in 480 crystals of 24 cm length internally equipped with cylindrical wire chambers for central tracking and $\Delta E/\Delta x$ for particle identification.
Forward time-of-flight scintillator wall and forward scintillator calorimeter.
Multiwire proportional plane wire chambers for forward tracking.

Main Fields of Nuclear Research:

Polarisation degrees of freedom in photoreaction off proton and neutron.
Meson photoproduction.
Strangeness photoproduction.
Search for pentaquark states.
Determination of the Gerasimov-Drell-Hearns sum rule.

Main Fields of Other Research:

Photoionization at 1 GeV.
Isotropy of the velocity of light.

Accommodation:

Gueshouse, which is located on site,has 114 single bedrooms and 20 twin rooms. Restaurant on-site. Hotels in Grenoble.

Transportation:

Grenoble train station, 4 Km from the laboratory, connected to ESRF by buses. Lyon International Airport is the closest to Grenoble and regular shuttle buses operate to and from Grenoble bus station.

Future Developments (under construction):

Installation of a polarised hydrogen and deuterium target.

GRENOBLE ILL *(France)*

Institut Laue-Langevin
6 rue Jules Horowitz
BP 156
Grenoble Cedex 9
F-38042
Fax: +33 4 76 48 39 06
WWW: http://www.ill.fr/

Director:

C.J. Carlile
Phone: +33 4 76 20 71 74
E-Mail: carlile@ill.fr

Contact Person for Foreign Users:

G. Cicognani
Phone: +33 4 76 20 70 82
Fax: +33 4 76 48 39 06
E-Mail: sco@ill.fr

Facility:

High-Flux 58.4 MW Reactor: The most powerful source of neutrons in the world for research, operating some 40 intsruments. Maximum unperturbed thermal-neutron flux in reactor: 1.0×10^{15} n /cm^2/s. Maximum perturbed thermal-neutron flux at beam tubes: 0.8×10^{15} n /cm^2/s. Hot source at 2400 K. Vertical and horizontal cold sources at 25 K.

Procedure to Apply for Beamtime:

Proposals for experiments at the ILL are submitted from the "visitor's club" on the ILL's website (www.ill.fr). Two proposal rounds per year, whose dates are announced on the ILL's website.

Programme Advisory Committee (current membership):

8 different PAC subcommittees each specialised in a particular scientific field (one subcommittee for nuclear and fundamental physics). Each PAC has 8 external memebers.

Main Instrumentation for Nuclear Physics Experiments:

Four main intruments: Lohengrin (PN1), GAMS (PN3), PF1 and PF2.
The Lohengrin online mass spectrometer for unslowed fission products, which produces and separates neutron-rich nuclei far from stability. The focal point of the

spectrometer can be equipped with, ionistation chambers for particle identification, an efficent array of "Clover" detectors for γ-ray spectroscopy, BaF_2 detectors for fast-timing measurements and Si(Li) detectors for conversion-electron spectroscopy. These detectors are used mostly for the studying decays from microsecond isomers. A tape transport is also available for beta-decay studies. Studies of the fission process and applied physics experiments related to reactor applications can also be performed with this instrument.
The GAMS 4 and 5 ultra-high resolution crystal gamma-ray spectrometers have eV resolution and can be used for ultra-high resolution gamma-ray spectroscopy, measurements of nuclear lifetimes on the femtosecond scale, the determination of fundamental constants and the low-energy slowing down processes of ions in matter.
The PF1 cold-neutron beam, with a thermal-equivalent flux of 1.4×10^{10} n/cm^2/s delivers the most intense cold polarised neutron beam in the world. It can be used for experiments such as the study of asymmetries in neutron decay, nuclear structure (through fission or neutron-capture reactions) and studies of the fission mechanism.
PF2 ultra-cold neutron facility provides beams of ultra-cold neutrons. Examples of experiments include studies of the electric dipole moment of the neutron and measurements of the neutron lifetime.

Main Fields of Nuclear Research:

Nuclear structure of neutron-rich nuclei far from stability. Nuclear structure from neutron-capture reactions.

Main Fields of Other Research:

Reasearch at the ILL covers nearly all areas of physics, chemistry, biology, materials science and engineering.

Accommodation:

Joint guest house (with the ESRF) with 114 single rooms and 20 twin rooms located at the laboratory.

Transportation:

Train station Grenoble (2 km from the laboratory). Grenoble, Lyon and Geneva airports all within easy reach by road (all have regular coach services).

GRONINGEN KVI *(The Netherlands)*

Kernfysisch Versneller Instituut
Zernikelaan 25
NL-9747 AA Groningen
Fax: +31 50 363 35 55
WWW: http://www.kvi.nl/

Facility:

AGOR: superconducting K=600 MeV cyclotron for light and heavy ions. Variable energy up to 190 MeV protons, 360 MeV alphas, heavy ions ($Q/A < 0.35$) up to $E/A = 600(Q/A)^2$ MeV/u. Axial injection: ECR for heavy ions, polarised proton and deuteron source.

Director:

M.N. Harakeh
Phone: +31 50 363 35 54
E-Mail: harakeh@kvi.nl

Contact Person for Foreign Users:

A.M. van den Berg
Phone: +31 50 363 36 29
E-Mail: berg@kvi.nl

Procedure to Apply for Beamtime:

Contact: R.G.E. Timmermans.
Call for proposals once a year. Presentation in open meeting.
Beamtime allotted on recommendation of PAC.

Programme Advisory Committee (current membership):

0 in-house, 0 national, 6 international members.

Main Instrumentation for Nuclear Physics Experiments:

Magnetic spectrometer BBS: K=430 MeV; Δp/p variable between 13 and 25%; solid angle variable from 14.4 to 6.5 msr; energy resolution ΔE/E=$4{\cdot}10^{-4}$. Various position-sensitive detection systems for light and heavy ions as well as a polarimeter are available.
Dual-mode magnetic separator TRIμP, consisting of two sections; in the first mode (using both sections) it operates as a fragment separator with parameters $B\rho_{\max} = 3.0$ Tm, hor. and vert. opening $\pm$30 mrad and momentum range $\pm$2%;

in the second mode it operates as a gas-filled recoil separator with parameters $B\rho_{\max} = 3.0$ Tm, opening angles ± 30 mrad and nominal dispersion $D = 6.8$ m.
BINA: Big Instrument for Nuclear-polarisation Analysis, consisting of a large scintillator wall, multi-wire chambers and thin ΔE detectors, for energy determination, tracking and particle identification, respectively; in addition, 150 phoswich scintillator elements cover the complete backward hemisphere.
Plastic Ball: consisting of 815 phoswich detector modules, each module consists of a thin 4 mm CaF_2 layer and a 356 mm plastic scintillator.

Main Fields of Nuclear Research:

Few-body physics.
Nuclear-matter properties.
Fundamental symmetries and interactions.
Nuclear-structure studies of giant resonances.
Nuclei under extreme conditions.
Dynamics of heavy-ion studies.

Main Fields of Other Research:

Atomic physics using laser-cooled atoms and highly stripped ion beams from ECR sources.
Nuclear geophysics (radon, landmine detection, borehole assessment by PNDT, antineutrino tomography, *in situ* asphalt-layer measurements).

Accommodation:

7 guest rooms (8 people).
Other facilities in city of Groningen (4 km).

Transportation:

Public transportation up to 1 km from the laboratory. Bicycles made available by the Institute.

Future Developments (under construction):

Facility for radiobiology research and other irradiation studies.

HAMBURG DESY *(Germany)*

Facility:

HERA: Electron-proton storage ring (27.5 GeV polarized electrons and positrons 920 GeV protons).

Deutsches Elektronen-
Synchrotron DESY
Notkestr. 85
D-22607 Hamburg
Phone: +49 40 899 80
Fax: +49 40 89 98 43 04
WWW: http://www.desy.de/

Director:

Albrecht Wagner
Phone: +49 40 89 98 30 00
E-Mail: Albrecht.Wagner@desy.de

Contact Person for Foreign Users:

Robert Klanner
Phone: +49 40 89 98 25 58
E-Mail: Robert.Klanner@desy.de

Procedure to Apply for Beamtime:

Send letter of intent to the Director of Research. The Physics Research Committee PRC will examine this document and make recommendations to the DESY directorate.

Programme Advisory Committee (current membership):

13 external, international members, scientific member of DESY directorate

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Main Instrumentation for Nuclear Physics Experiments:

HERMES: magnetic spectrometer, instrumented with tracking detectors and particle identification for hadrons and electrons.

Main Fields of Nuclear Research:

Electron nucleus scattering with polarised electron beams (27.5 GeV) and polarised/unpolarised nuclear targets.
Spin structure of the nucleon.
Skewed parton distribution.
Nuclear transparency.

Main Fields of Other Research:

Particle physics.
Research with synchroton radiation.
Accelerator divelopment.
Free-electron laser.

Accommodation:

Hostel on site, wide choice of hotels in Hamburg.

Transportation:

Public transportation from Hamburg-Altona and Hamburg airport.

JÜLICH *(Germany)*

Facility:

Storage and cooler synchrotron COSY provides unpolarized and polarized proton (deuteron) beams up to 2.88 (2.27) GeV. Electron (at 46 MeV) and stochastic cooling (above 800 MeV). Beam extraction from ns to minutes. COSY injector cyclotron (JULIC) also used for irradiations. Detector systems at internal and external target stations.

Institut für Kernphysik
Forschungszentrum JÏich GmbH
Postfach 1913
D-52425 Jülich
Fax: +49 24 61 61 39 30
WWW: http://www.fz-juelich.de/ikp/

Director:

R. Maier
Phone: +49 24 61 61 39 80
r.maier@fz-juelich.de,
U.-G. Meißner
Phone: -30 94
u.meissner@fz-juelich.de,
J. Ritman
Phone: -30 91
j.ritman@fz-juelich.de,
H. Ströher (managing director)
Phone: -30 93
h.stroeher@fz-juelich.de

Contact Person for Foreign Users:

M. Büscher
Phone: -56 03
m.buescher@fz-juelich.de

Procedure to Apply for Beamtime:

Proposals, Beam Requests, and Letters of Intent should be directed to the COSY-Programme Advisory Committee via one of the contact persons. Please use the cover page as provided at [www.fz-juelich.de/ikp/cosy/en/cosy_proposal_templates.shtml].

Programme Advisory Committee (current membership):

0 in-house, 5 national, 6 international members.

Main Instrumentation for Nuclear Physics Experiments:

ANKE, magnetic spectrometer in COSY ring, variable momentum range via chicane, detector systems for positive and negative particles, unpolarized and polarized targets. BIG KARL, high resolution external magnetic spectrograph, detectors at target (GEM, MOMO) and focal plane (ENSTAR, HIRES). COSY-11, internal magnetic detector, using one of the COSY dipoles. EDDA, non-magnetic internal detector with azimuthal symmetry. TOF, external large acceptance, high spatial resolution time-of-flight spectrometer with azimuthal symmetry, tracking detector systems at target, miniaturized LH_2 target.

Main Fields of Nuclear Research:

Hadron physics with hadronic probes: spectroscopy, structure and dynamics of hadrons; strangeness and polarization; QCD and its symmetries, effective field theories.

Main Fields of Other Research:

Spin-manipulation of proton/deuteron-beams in storage rings, electron cooling of GeV hadron beams

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Accommodation:

Hotels in Jülich, flats for rent and a guest house for longer stays, special on-site rooms for external scientists during experiments.

Transportation:

Buses running on a fixed schedule during normal working hours. Car service may be arranged according to necessity.

Future Developments (under construction):

Frozen spin target for TOF, polarized internal target for ANKE, transfer of WASA from CELSIUS to COSY. Design and construction of HESR for FAIR, participation in PANDA, PAX and FLAIR.

JYVÄSKYLÄ *(Finland)*

University of Jyväskylä
Department of Physics
Accelerator Laboratory
P.O. Box 35
FIN-40014 University of Jyväskylä
Fax: +358 14 260 23 51
WWW: http://www.phys.jyu.fi/

Director:

R. Julin
Phone: +358 14 260 24 26
E-Mail: rauno.julin@phys.jyu.fi

Contact Person for Foreign Users:

P. Greenlees
Phone: +358 14 260 23 75
E-Mail: ptg@phys.jyu.fi

Facility:

Cyclotron (AVF, K=130) with two external ECR ion sources for heavy ions and a multi-cusp ion source for light ions.
Heaviest ion for energies above Coulomb barrier is Kr.

Procedure to Apply for Beamtime:

Call for proposals on March 15 and September 15 every year. Send the proposal to the contact person P. Greenlees. List of authors should preferably comprise in-house physicists.

Programme Advisory Committee (current membership):

3 in-house, 6 international members.

Main Instrumentation for Nuclear Physics Experiments:

On-line isotope separator IGISOL with RFQ cooler.
Collinear laser spectroscopy setup.
Penning traps.
Gas-filled recoil separator RITU.
GREAT focal plane spectrometer.
Ge- detector arrays.

Electron spectrometers.
HENDES - neutron and charged particle detector array.
Large scattering chamber.
Beam line for radiation effect studies.
Facility for radioactive isotope production.

Main Fields of Nuclear Research:

Structure and ground state properties of neutron deficient, neutron rich and super heavy nuclei.
Nuclear reactions.

Main Fields of Other Research:

Radiation effects on materials and electronic components.
Manipulation of materials with ion beams.
Medical applications.

Accommodation:

University guest rooms, guest apartments and hotels, especially the hotel within 200 m from the laboratory.

Transportation:

The laboratory is in the downtown area of Jyväskylä. Several daily flight and train connections from Helsinki.

Future Developments (under construction):

High-precission Penning trap.
Laser ion source for IGISOL.
Second recoil separator.

KÖLN *(Germany)*

Institut für Kernphysik
Universität zu Köln
Zülpicher Str. 77
D-50397 Köln
Fax: +49 221 470 5168
WWW: http://www.ikp.uni-koeln.de/

Director:

J. Jolie
Phone: +49 221 470 3456
Fax: +49 221 470 5168
E-Mail: jolie@ikp.uni-koeln.de

Contact Person for Foreign Users:

A. Dewald
Phone: +49 221 470 3460
Fax: +49 221 470 5168
E-Mail: dewald@ikp.uni-koeln.de

Facility:

FN Tandem accelerator with terminal voltage of up to 10MV producing light and heavy ion (Z up to 30) beams from sputter, duoplasmatron and Lambshift ion sources with energies up to 120 MeV. The beam can be pulsed to bunches of 2.5 ns with frequencies up to 2.5 MHz. Typical beam currents are 10-100nA.

Procedure to Apply for Beamtime:

Informal

Programme Advisory Committee (current membership):

There is no PAC

Main Instrumentation for Nuclear Physics Experiments:

Ge-array HORUS with beta decay slider for activation measurements.
Plunger set-up for lifetime measurements.
Double Orange conversion electron spectrometer.
PIXE installation with beam sweeper.
Multipurpose scattering chamber.
Particle-gamma coincidence set-up.
Two beamlines for temporary set-ups.

Main Fields of Nuclear Research:

Low energy nuclear structure research.
Complete low-spin spectroscopy.
Determination of absolute electromagnetic transition rates.
Sub-Coulomb barrier reactions.

Main Fields of Other Research:

Applied physics: Proton Induced X-ray Emission using a sweeped beam allowing position sensitivity with mm resolution. Radiation effects in solids: material modification and ion implantation.

Accommodation:

The Institute is located in the center of Köln with numerous hotels.

Transportation:

Tramway 8 and 9 stop Universität and tramway 18, 19 stop Eifelwall. Köln/Bonn Airport: 15 km from the laboratory.

LEGNARO LNL *(Italy)*

Laboratori Nazionali di Legnaro
Istituto Nazionale di Fisica Nucleare
Viale dell'Università, 2
I-35020 Legnaro (Padova)
Fax: +39 049 64 19 25
Phone: +39 049 80 68 311
WWW: http://www.lnl.infn.it/

Director:

G. Puglierin
Phone: +39 049 80 68 35 63 91

Contact Person for Foreign Users:

L. Corradi (Tandem-Alpi)
E-Mail: Lorenzo.Corradi@lnl.infn.it
P. Colautti (7 MV-Van de Graaff CN Accelerator)
E-Mail: paolo.colautti@lnl.infn.it
V. Rigato (2.5 MV LNL AN2000 Van de Graaff Accelerator)
P. Colautti (7 MV-Van de Graaff CN Accelerator)
E-Mail: valentino.rigato@lnl.infn.it

Facility:

Tandem-ALPI: 16MV Tandem + superconductive Linac booster. Ion beams, A≤100, equivalent voltage 25 MeV/q.
Van de Graaf CN, 7 MV, for ion H, He and N. DC and pulsed mode.
Van de Graaff AN 2000, 2MV, DC beams.
PIAVE-ALPI (now coming in operation): superconductive ion injector + Linac. Ion beams extended to all stable elements.

Procedure to Apply for Beamtime:

All proposals are screened on the basis of scientific merit by the LNL Program Advisory Committee (PAC) for the Tandem-ALPI accelerator complex and the User Selection Panel (USP) for the other facilities.
Detailed information at http://www.lnl.infn.it/accelerators/accelerators.html

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Programme Advisory Committee (current membership):

0 in-house, 3 national, 4 international members.

Main Instrumentation for Nuclear Physics Experiments:

PRISMA: large solid angle magnetic spectrometer for heavy ions. CLARA: array of 25 CLOVER γ-ray Ge detectors of the EUROBALL spectrometer, placed at

the PRISMA target location. GASP: array of 40 γ-ray Ge detectors with anti-Compton shields and 80 BGO inner ball, 4π Si ball for light particles. CAMEL: Recoil Mass Spectrometer. High granularity 4π arrays for light particles and heavy fragments (8πLP and GARFIELD). TOF spectrometer for heavy-ions (PISOLO). A magneto-optical trap for atomic trapping of exotic nuclei. Scattering chambers and detectors for heavy-ions, light-ions and neutrons.

Main Fields of Nuclear Research:

Structure of neutron-rich nuclei populated with binary reactions.
Nuclear structure at high spins, high excitation energy and superdeformation.
Heavy-ion collisions around and below the Coulomb barrier.
Reaction mechanism studies with light- and heavy-ions, and neutrons.

Main Fields of Other Research:

Biophysics, medical physics, microdosimetry. Environmental physics. Solid state physics, material physics. Accelerator physics, superconductivity, RNB developments. Gravitational wave searching. Vacuum polarization (QED) experimental investigation.

Accommodation:

9 single rooms and 14 twin rooms (28 beds). Cooking and laundry facilities.

Transportation:

Public bus service from and to Padova every 20 minutes from 6 a.m. to 8 p.m.

Future Developments (under construction):

The new superconductive linac injector (PIAVE) with the ECR ion source (for high intensity heavy beams) is almost completed (operation scheduled by Dec.2004).
Construction of an ISOL facility for the production of rare and unstable neutron-rich beams (SPES).
Completion of the EXOTIC facility for the production of secondary exotic beams following inverse kinematics reactions induced on light targets.

LOUVAIN-LA-NEUVE *(Belgium)*

Centre de Recherches du Cyclotron
Chemin du Cyclotron, 2
B-1348 Louvain-la-Neuve
Fax: +32 10 45 21 83
WWW: http://www.cyc.ucl.ac.be/

Director:

Pierre Leleux
Phone: +32 10 47 32 29
E-Mail: leleux@fynu.ucl.ac.be

Guido Ryckewaert
Phone: +32 10 47 32 37
E-Mail: ryckewaert@cyc.ucl.ac.be

Contact Person for Foreign Users:

Carmen Angulo
Phone: +32 10 47 32 31
E-Mail: angulo@cyc.ucl.ac.be

Carine Baras
Phone: +32 10 47 29 98
E-Mail: baras@cyc.ucl.ac.be

Facility:

Cyclotron CYCLONE110 for ions from H (25 μA, 10–90 MeV) to Xe (few nA, 400 MeV), including 5–25 MeV/A ^{12}C to ^{40}Ar ions and 0.65–10 MeV/A radioactive ions.
Cyclotron CYCLONE44 for ions of $4 < A/Q < 14$, up to 0.8 MeV/A.
Cyclotron CYCLONE30 for H beams up to 30 MeV, 500 μA.

Procedure to Apply for Beamtime:

Send a written proposal to the secretary of the PAC (C. Angulo). Present it orally at the PAC meeting (twice per year, beginning of January and beginning of July).

Programme Advisory Committee (current membership):

1 in-house, 4 national, 4 international members.

Main Instrumentation for Nuclear Physics Experiments:

Radioactive ion beam facility for ^{6}He, ^{7}Be, ^{10}C, ^{11}C, ^{13}N, ^{15}O, ^{18}F, ^{18}Ne, ^{19}Ne, ^{35}Ar (other radioactive beams under development) using either CYCLONE110 with CYCLONE30 or CYCLONE44 with CYCLONE30.
Leuven Isotope Separator On-Line (LISOL) with FEBIAD, ion guide (LIGISOL) and laser ion sources.
Monoenergetic fast neutron facility (20-75 MeV).
Electron cyclotron resonance ion sources.
Neutron multidetector array (DEMON).
Multistrip charged particle detectors (LEDA).

Main Fields of Nuclear Research:

Nuclear astrophysics in explosive environments.
Exotic light nuclei and nuclei far from stability.
Heavy ion reaction mechanisms.
Fast neutron interactions of interest for biology and energy generation.

Main Fields of Other Research:

Radiobiology, neutron dosimetry.
Nuclear chemistry.
Radiation damage by light, heavy and fast neutrons.
Detector calibration for space missions.

Accommodation:

2 apartments in the immediate neighborhood, 2 hotels within walking distance.

Transportation:

Public transportation from the center of Brussels and from Brussels National Airport by fast connection.

LUND MAX-Lab *(Sweden)*

MAX-Laboratory
Box 118
S-221 00 Lund
Fax: +46 46 10 47 10
WWW: http://www.maxlab.lu.se/

Director:

N. Mårtensen
Phone: +46 46 222 96 95
E-Mail: Forestandare@maxlab.lu.se

Contact Person for Foreign Users:

Bent Schröder
Phone: +46 46 222 96 96, +46 46 222 76 36
E-Mail: Bent.Schroder@nuclear.lu.se

Facility:

Two linear accelerators equipped with SLED systems delivering electrons up to a total energy of 250 MeV combined with a 250 MeV pulse stretcher ring. Extracted high duty factor beam with 50 - 100 nA for production of tagged photons in the energy range 20 to 225 MeV. The photon energy resolution can be varied from a few hundred keV upwards.

Procedure to Apply for Beamtime:

Proposals should be sent to the contact person.

Programme Advisory Committee (current membership):

J. Ahrens, C. Bargholtz, P. Debevec (chairman), G. Fäldt

Main Instrumentation for Nuclear Physics Experiments:

Tagging magnets with two hodoscopes.
6 NaI photon spectrometers.
12 Liquid scintillator neutron detectors.
Telescope of Si-Si or Si-Ge for charged particles.
Targets for LHe and LH.
Time of flight neutron detector wall.

Main Fields of Nuclear Research:

Study of nucleons and nuclei with real photons in the energy region 20 to 225 MeV. The MAX-laboratory is part of the Transnational Access to Research Infrastructure project within the EU program I3HP, HadronPhyscis.

Main Fields of Other Research:

Research in physics, chemistry and life sciences using synchrotron radiation.

Accommodation:

Hotels nearby laboratory plus limited number of guest rooms.

Transportation:

Public transportation, train from Lund to Kastrup airport and bus from Lund to Malmo airport (Sturup).

Future Developments (under construction):

Development of a L^{3}He target. Production of coherent bremsstrahlung.

MAINZ MAMI *(Germany)*

Institut für Kernphysik der
Johannes Gutenberg-Universität
Johann-Joachim-Becher-Weg 45
D-55099 Mainz
Fax: +49 61 31 392 29 64
WWW: http://www.kph.uni-mainz.de/

Director:

Th. Walcher
Phone: +49 61 31 392 51 97
E-Mail: walcher@kph.uni-mainz.de

Contact Person for Foreign Users:

Director and spokespersons of collaborations
Phone: +49 61 31 392 51 97
E-Mail: walcher@kph.uni-mainz.de

Facility:

Mainz Microtron MAMI: C.w. electron beam with energy up to 880 MeV and current up to 100 μA (unpolarised) and 60 μA (polarised). In 2005 upgrade to 1500 MeV (see *Future Developments*).

Procedure to Apply for Beamtime:

Submission of written proposal, followed by oral presentation. Evaluation by Program Advisory Committee. Opportunity to join already existing proposals on the consent of the proposing collaboration.

Programme Advisory Committee (current membership):

1 in-house, 3 national, 6 international members.

Main Instrumentation for Nuclear Physics Experiments:

A1 (electron scattering): Setup of three magnetic spectrometers (one with optional proton polarimeter). Additional calorimetric detectors for nucleons. Liquid hydrogen/deuterium target, polarised ^{3}He-target.

A2 (real photon scattering): Tagger for creation of unpolarised and polarised photon beam. Large solid angle detectors DAPHNE (Saclay) and Crystal Ball (SLAC). Polarised hydrogen/deuterium target.

A4 (parity-violating electron scattering): Setup of fast PbF_2 crystal detectors with high-countrate readout electronics and liquid hydrogen/deuterium target.

X1 (X-ray generation): Coherent X-ray generation using transition- and undulator-radiation and the Smith-Purcell effect.

Main Fields of Nuclear Research:

Study of the structure of hadrons with electromagnetic probes at low energies and momentum transfers.

Main Fields of Other Research:

Accelerator physics.
X-ray physics.

Accommodation:

Hotels in Mainz.

Transportation:

Public transportation: Bus from railway station.

Future Developments (under construction):

Beam energy upgrade of MAMI to 1500 MeV by addition of a double-sided harmonic microtron (MAMI C). Integration of high momentum magnetic spectrometer KAOS from GSI into A1 setup.

ORSAY *(France)*

Institut de Physique Nucléaire
F-91406 Orsay Cedex France
Fax: +33 1 69 15 64 70
WWW: http://ipnweb.in2p3.fr/

Director:

D. Guillemaud Mueller
Phone: +33 1 69 15 73 25
Fax: +33 1 64 46 77 55
E-Mail: guillema@ipno.in2p3.fr

Contact Person for Foreign Users:

F. Ibrahim
Phone: +33 1 69 15 44 77
E-Mail: ibrahim@ipno.in2p3.fr

Facility:

MP Tandem with 15 MV terminal voltage to accelerate various elements from H to I continuously or pulsed, intensity 5μA for H^+. Rare beams ^{14}C, ^{36}S, ^{48}Ca, C_{60} and C_{70} clusters.
Positive ion source at the terminal to produce metallic clusters (ORION facility)

Procedure to Apply for Beamtime:

Proposal should be sent to the Tandem PAC chairman (F. Azaiez azaiez@ipno.in2p3.fr). The proposals are presented once a year at the PAC meeting.

Programme Advisory Committee (current membership):

4 in-house, 4 national, 2 international members.

Main Instrumentation for Nuclear Physics Experiments:

PARRNe: On line separator for production of exotic neutron rich nuclei
Station for decay studies
Line 320: Irradiation of electronic components
Split Pole: Magnetic spectrometer for "two bodies" reaction studies

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Main Fields of Nuclear Research:

Nuclei far from stability and secondary radioactive ion beams (AGOR, ISOLDE, GANIL, GSI, Orsay Tandem/ALTO)
Nuclear structure at high spin and excitation (Orsay Tandem, Legnaro, Ganil)
Isovector resonances, multiphonons
Nuclear physics for energy and environment
Nucleus-nucleus collisions and the phases of nuclear matter from medium to ultra relativistic energies (GSI, GANIL, CERN)
Hadronic physics: structure of the nucleon, electron and photoproduction of vector mesons (ESRF, MAMI, CEBAF,GSI)

Main Fields of Other Research:

Atomic physics : clusters atoms collisions (AGAT)
Heavy ion plasma and cluster gas and surface interaction
Radiochemistry and cycle of nuclear wastes (transmutation storage)
Detectors and imaging for biology and medicine
Theory group (nuclear structure, hadronic physics, high energy physics)
Astro particles: (AUGER)

Accommodation:

7 rooms in the Tandem/ALTO building. Nearby hotel in Orsay

Transportation:

Public transportation (RER B). Both Paris Airports directly reachable by the RER B

Future Developments (under construction):

ALTO: accelerator with 50MeV, 10μA electrons for the production of high intensity neutron rich nuclei beams (under construction, first beam end 2005)
Collaboration GANIL-Orsay: SPIRAL2
Collaboration CERN-Orsay for the LHC temperature sensors and mechanical design of supraconductives dipoles
IPHI High intensity proton injector
Study of medical cyclotron
Integrated electronic and data acquisition for AGATA
Multiwire tracking chamber for ALICE di-muon arm at LHC
Detector station for HADES experiment at GSI

OSLO *(Norway)*

Facility:
Cyclotron MC-35 for light ions up to ^{4}He and energies up to 48 MeV.

Department of Physics
University of Oslo
P.O.Box 1048 Blindern
N-0316 Oslo
Phone: +47 22 85 64 28
Fax: +47 22 85 64 22
WWW: http://lynx.uio.no/

Director:

Eivind Osnes
Phone: +47 22 85 64 30
E-Mail: eivind.osnes@fys.uio.no
Head of facility:
M. Guttormsen
Phone: +47 22 85 64 60
E-Mail: Magne.Guttormsen@fys.uio.no

Contact Person for Foreign Users:

Head of facility (see above).

Procedure to Apply for Beamtime:

Write to contact person for foreign users.

Programme Advisory Committee (current membership):

There is no PAC.

Main Instrumentation for Nuclear Physics Experiments:

Multidetector array CACTUS for γ-rays.
Silicon strip detector array for charged particles.

Main Fields of Nuclear Research:

Nuclear structure at high temperature and low spin.

Main Fields of Other Research:

Production of radioactive nuclei for cancer therapy.

Accommodation:

University guest rooms and hotels.

Transportation:

Taxi or public transportation from downtown (4 km) or airport (50 km).

ŘEŽ near PRAGUE *(Czech Republic)*

Nuclear Physics Institute
Academy of Sciences
of the Czech Republic
CZ-25068 Řež near Prague
Czech Republic
Fax: +420 220941130
WWW: http://www.ujf.cas.cz/

Facility:

Cyclotron U-120M: Isochronous cyclotron (K=40) for light ions operated in both positive (p, D, $^3He^{2+}$, $^4He^{2+}$) and negative (H^-, D^-) regimes.

Director:

J. Dobeš
Phone: +420 220941147
Fax: +420 220941130
E-Mail: dobes@ujf.cas.cz

Contact Person for Foreign Users:

J. Štursa
Phone: +420 266173613
Fax: +420 220941130
E-Mail: stursa@ujf.cas.cz

Procedure to Apply for Beamtime:

Call for proposals on June 15th and December 15th every year. Submit proposals to contact person for foreign users.

Programme Advisory Committee (current membership):

8 in-house, 4 national, 0 international members

Main Instrumentation for Nuclear Physics Experiments:

Achromatic magneto-optical system for spectroscopy of nuclear reaction products. High-power-wide spectrum fast neutron sources (10^{11} n/s/cm^2 up to 32MeV). Scintillator detector based fast neutron spectrometer.

Main Fields of Nuclear Research:

Nuclear Astrophysics.
Fast neutron benchmark tests of activation cross sections.

Main Fields of Other Research:

Neutronic tests of fusion related materials.
Cross section measurements and preparation of new radionuclides for nuclear medicine purposes.

Accommodation:

Institute guest rooms on the site.
Hotel within walking distance from the Institute.

Transportation:

The Institute is located 20km from Prague.
Trains and buses go from and to Prague every 1 hour from 5 am to 12 pm.

Future Developments (under construction):

New beam lines dedicated to particular projects.
Increase of external beam intensity up to 50mA.

TRENTO ECT* *(Italy)*

European Centre for Theoretical
Studies in Nuclear Physics and
Related Areas (ECT*)
Strada delle Tabarelle, 286
I-38050 Villazzano (Trento)
Phone: +39 0461 314 722
Fax: +39 0461 314 747
E-Mail: dona@ect.it
WWW: http://www.ect.it

Director:

Jean-Paul Blaizot
Phone: +39 0461 314 760
email: blaizot@ect.it
Scientific Secretary
Renzo Leonardi
Phone: +39 0461 314 753
E-Mail: renzo@ect.it

Contact Person for Foreign Users:

The Director.

Facility:

ECT* hosts a variety of activities in theoretical nuclear physics and related areas: workshops and collaboration meetings, doctoral training programs, innovative research. It offers positions for postdoctoral fellows and visiting scientists . It has two dedicated clusters for parallel computing. ECT* is an institutional member of the ESF Committee NuPECC.

Procedure to Apply for Beamtime:

Applications for a stay at ECT* and proposals for a workshop or a collaboration meeting should be sent to the Director. Details are given on ECT* Web page.

Programme Advisory Committee (current membership):

The Programme Advisory Committee is the Board of Directors. Current members: M.Baldo, M. Birse, P.Braun-Munzinger, M.Harakeh, P. Hoyer, F. Karsch, E.Moya de Guerra, V.Pandharipande and F-K.Thielemann.

Main Instrumentation for Nuclear Physics Experiments:

Workshops and collaboration meetings
Doctoral Training Programme
Positions for postdocs and visiting scientists
In-house library and access to the Physics Department library
Supercomputer allowing parallel computing thanks to a cluster architecture with maximum capacity of 1TeraFlop/s
Offices in two buildings: Villa Tambosi and the Rustico; two conference rooms (capacities of 40 and 80)

Main Fields of Nuclear Research:

Nuclear structure and low energy nuclear physics, QCD and hadron physics, high energy heavy ion reactions, nuclear matter under extreme conditions, nuclear astrophysics.

Main Fields of Other Research:

Related Areas: Particle physics, astrophysics, condensed matter physics and quantal physics of small systems, quantum information.

Accommodation:

The ECT* staff finds accomodation for visiting scientists and postdoc researchers in local hotels, appartments and university residences.

Transportation:

Nearest airport: Verona (80 km). Trento is on the Innsbruck-Brenner-Verona railwayline (Munich-Trento ca. 5 hours). Trento is on the motorway connecting Munich-Innsbruck-Verona-Modena (A 22).

UPPSALA TSL *(Sweden)*

Facility:

Combination of cyclotron and CELSIUS storage ring, for p up to 1480 MeV, heavy ions ($A \leq 40$) up to 525 MeV/u, with electron cooling and up to 10^{11} ions stored.

The Svedberg Laboratory
Uppsala University
Box 533
SE - 751 21 Uppsala, Sweden
Fax: +46 18 471 38 33
WWW: http://www.tsl.uu.se/

Director:

C. Ekström
Phone: +46 18 471 31 12
E-Mail: curt.ekstrom@tsl.uu.se

Contact Person for Foreign Users:

H. Calén
Phone: +46 18 471 38 46
E-Mail: hans.calen@tsl.uu.se

Procedure to Apply for Beamtime:

Proposals should be sent to the Director.
Proposal forms available from contact person for foreign users.
See also the TSL home page.

Programme Advisory Committee (current membership):

3 in-house, 4 national, 10 international members.

Main Instrumentation for Nuclear Physics Experiments:

Monoenergetic neutron beam facility.
Internal target systems (cluster-jet and pellet targets) at CELSIUS.
WASA: 4π detector at CELSIUS for meson production and decay studies.
CHICSi: internal 3π detector at CELSIUS for heavy ion reaction studies.

Main Fields of Nuclear Research:

Intermediate energy nuclear reactions.
Neutron induced reactions.
Meson production mechanism.
Rare meson decays.
Heavy ions reactions.

Main Fields of Other Research:

Biomedical research with ion beams.
Proton beam therapy.
Applications of nuclear techniques to material science.
SEU and ATW studies using neutron beams.

Accommodation:

Limited number of local flats and single rooms.

Transportation:

Airport bus (35 km) from Stockholm Airport to central Uppsala.
Walking distance from city centre.

Future Developments (under construction):

Accelerator developments for HESR of FAIR, GSI Darmstadt.

VILLIGEN PSI *(Switzerland)*

Paul Scherrer Institut
CH-5232 Villigen PSI
Phone: +41 56 310 21 11
Fax: +41 56 310 21 99
WWW: http://www.psi.ch/

Director:

R. Eichler
Phone: +41 56 310 32 16
Fax: +41 56 310 27 17

Contact Person for Foreign Users:

C. Petitjean
Phone: +41 56 310 32 60
E-Mail: claude.petitjean@psi.ch

Facility:

Isochronous cyclotron running at 50.6 MHz frequency and delivering 2 mA proton current at 590 MeV.
Secondary beams of $\pi^{\pm}$, $\mu^{\pm}$, cold polarized n.

Procedure to Apply for Beamtime:

Submission of proposals.
Information on procedures available from http://ltp.web.psi.ch
Presentation in an open users meeting.
PAC meets once per year.

Programme Advisory Committee (current membership):

1 in-house, 3 national, 5 international members.

Main Instrumentation for Nuclear Physics Experiments:

Several highest intensity π- and μ-beams.
Special high purity μ-facility for measuring ultra-rare decays.
High intensity, highly polarized cold neutron beam.

Main Fields of Nuclear Research:

Low energy pion and muon physics.
Experiments with cold polarized neutrons.

Main Fields of Other Research:

Muon Spin Resonance experiments at several μSR facilities.
Radiation hardness tests of materials and electronic components and circuits with high intensity proton, neutron, pion and photon beams.
OPTIS: cancer therapy on human eyes with 72 MeV protons.
Human cancer therapy with 250 MeV protons, using a new dedicated cyclotron and a large gantry.
Neutron scattering at spallation neutron source SINQ.
X-ray experiments at the 2.4 GeV electron storage ring (Swiss Light Source SLS).

Accommodation:

Guest house (72 rooms) on site.

Transportation:

Bus connection to Brugg railway station (approx. 10 km).

Future Developments (under construction):

Source of ultra-cold neutrons derived from proton-induced spallation neutrons (high storage densities, low background). Commissioning 2006.

WARSZAWA *(Poland)*

Heavy Ion Laboratory
Warsaw University,
02-093 Warszawa, Pasteura 5A
Fax: +48 22 659 27 14
Phone: +48 22 554 60 00
WWW: http://www.slcj.uw.edu.pl/

Facility:

Cyclotron (isochronous, K_{max}= 160) with 9.6 GHz ECR source for ions from ^{4}He up to ^{40}Ar

Director:

Jerzy Jastrzębski
Phone : +48 22 822 21 23
E-Mail: jastj@nov.slcj.uw.edu.pl

Contact Person for Foreign Users:

Tomasz Czosnyka
E-Mail: czosnyka@slcj.uw.edu.pl

Jarosław Choiński
E-Mail: jch@slcj.uw.edu.pl

Procedure to Apply for Beamtime:

Fill out the beam request form available at http://www.slcj.uw.edu.pl/pac
Proposals are considered twice a year during PAC meetings

Programme Advisory Committee (current membership):

1 in-house, 8 national, 1 international

Main Instrumentation for Nuclear Physics Experiments:

JANOSIK, a multidetector system to study Giant Dipole Resonances. Uses a variety of beams with energies ranging from 4 to 10 MeV/amu. The system consists of the large, high purity lead shielded NaI(Tl) crystal (25.4 cm x 29.0 cm) and of the 32-element multiplicity filter (barium fluorine and NaI(Tl) detectors). It is designed to detect photons in a range 4 to 40 MeV. Movable arm allows to study angular distributions.

OSIRIS II, a ball consisting of 12 BGO-shielded high-purity Ge detectors, equipped with 50-element BGO-detector multiplicity filter covering the full solid angle, four-sector HPGe polarimeter, plunger and 30-element charged particle detector.
CUDAC, Coulomb Excitation chamber equipped with an array of silicon detectors-PIN diodes (1 cm by 1 cm) ; two forward Si(Li) detectors and associated 3 ORTEC HPGe detectors.
IGISOL - Scandinavian-type ion guide separator on-line. Helium transport of the short-lived reaction products to the separator ion source.
Large universal 80 cm scattering chamber, SYRENA, equipped with both silicon and gas telescope detectors allowing to measure angular distributions of charged particles.
Internal and external irradiation chambers for material research with target cooling possibilities.

Main Fields of Nuclear Research:

Structure of nuclei. In-beam spectroscopy. Giant resonances. Coulomb excitation. Nuclei far from stability line. Fusion barriers distribution.

Main Fields of Other Research:

Solid State and Material Physics studies with heavy ion beams. Atomic physics-ionization processes after HI interaction. Biological studies of high LET irradiation of cells.

Accommodation:

10 guest rooms.

Transportation:

The laboratory is placed 15 min. by bus from airport Okęcie.

Future Developments (under construction):

Installation of the second, medical proton/deuteron cyclotron for the production of PET radiopharmaceuticals; installation of the radiochemical and quality control units.

Statistics of Users of European Facilities

Site	Facility	Users		
		in-house	national	foreign
Assergi	LNGS	6	51	36
Bonn	ELSA	60	25	20
Caen	GANIL	50	370	280
Catania	LNS	45	60	140
Darmstadt	S-DALINAC	47	35	15
Darmstadt	GSI	120	295	265
Debrecen	Cyclotron	9	9	15
Frascati	DAΦNE	84	111	120
Garching	Tandem	56	47	45
Garching	FRM-II	*1	*1	*1
Genève	ISOLDE	5	*2	280
Grenoble	Graal/ESRF		46*4	13
Grenoble	ILL		959*5	145
Groningen	KVI	20	10	50
Hamburg	DESY	15	24	135
Jülich	COSY	60	130	150
Jyväskylä	Cyclotron	30	10	160
Köln	Tandem	30	20	25
Legnaro	Tandem-ALPI	40	100	250
Louvain-la-Neuve	CYCLONE	15	30	120
Lund	MAX-Lab	10	1	50
Mainz	MAMI	86	20	79
Orsay	Tandem	40	100	60
Oslo	Cyclotron	4	4	4
Řež near Prague	Cyclotron	9	5	6
Trento	ECT*	9	84	440
Uppsala	TSL	17	42	135
Villigen	PSI	15	15	150
Warszawa	HIL-cyclotron	7	98	15

*1 Since August 2004
*2 ISOLDE Collaboration (BE, DK, FI, FR, GE, IT, SP, SE, UK and CERN)
*3 Swiss and French users
*4 GrAAL Collaboration
*5 Users of member state countries (AU, CH, CZ, FR, GE, IT, RU, SP and UK)

How to Contact European Funding Agencies

List of Agencies

EUROPE

Commission Européenne
SDME 1/60
1049 Bruxelles

European Science Foundation
1, quai Lezay-Marnesia
67080 Strasbourg Cedex

AUSTRIA

Fonds zur Förderung der wissenschaftlichen Forschung
Weyringergasse 35
A-1040 Wien

Österreichische Akademie der Wissenschaften
Dr. Ignaz Seipel-Platz 2
A-1040 Wien

BELGIUM

Fonds National de la Recherche Scientifique
rue d'Egmont, 5
B-1000 Bruxelles

Fonds voor Wetenschappelijk
Ouderzoek – Vlaanderen
Egmontstraat 5
B-1050 Bruxelles

IWT
Bischoffsheimlaan 25
1000 Bruxelles

DWTC-SSTC
Wetenschapsstraat 8
1000 Bruxelles

CZECH REPUBLIC

The Academy of Sciences of the Czech Republic
Narodni 3
117 20 Praha 1

Grant Agency of the Czech Republic
Narodni 3
117 20 Praha 1

Int. Co-operation in Res. and Development Dept. 32
Ministry of Educ., Youths a.
Karmelitska 7
118 12 Praha 1

Government of the Czech Republic
Nabrezi E. Benese 4
118 01 Praha 1

DENMARK

Danish Natural Science Research Council
Artillerivej 88
2300 Copenhagen S

FINLAND

Academy of Finland
Research Council for the Natural Sciences
PO Box 99
00501 Helsinki

Ministery of Education
P.O. Box 29
00023 Government

FRANCE

Institut National de Physique Nucléaire et de Physique des Particules
CNRS, 3 rue Michel Ange
F-75781 Paris, Cedex 16

Direction des Sciences de la Matière
Orme des Merisiers
CEA Saclay
F-91191 Gif-sur-Yvette Cedex

Ministere de la Recherche et de la Technologie
21, rue Descartes
75231 Paris Cedex 05

Ministere de la Recherche
1 rue Descartes
75231 Paris cedex 05

Saclay
DSM
CEN Saclay, Orme des Merisiers
91191 Gif-sur-Yvette cedex

Haut-Commissaire à l'Energie
Atomique
CEA
31-33, rue de la Fédération
75752 Paris cedex 15

GERMANY

Bundesministerium für Bildung und Forschung
Dienstsitz Bonn
Heinemannstr. 2
53170 Bonn

Bundesministerium für Bildung und Forschung
Dienstsitz Berlin
Hannoversche Straße 28-30
10115 Berlin

Max-Planck-Gesellschaft zur Förderung der Wissenschaften e.V.
Hofgartenstr. 8
80539 München

Helmholtz Gemeinschaft Deutscher Forschungszentren e.V.
Ahrstr. 45
53175 Bonn

HUNGARY

Secretary General,
Hungarian Academy of Sciences
Roosevelt tér 9.
Budapest
H-1051

College for Physical Sciences
National Fund for Scientific Research
OTKA Iroda
Budapest
Könyves Kálmán krt. 48-52.
H-1087

Physics Jury,
National Fund for Scientific Research
OTKA Iroda
Budapest
Könyves Kálmán krt. 48-52.
H-1087

ITALY

Istituto Nazionale di Fisica Nucleare
Presidenzia
Piazza dei Caprettari 70
I-00186 Rome

ITC
Via Santa Croce, 77
38100 Trento

THE NETHERLANDS

Stichting FOM
Postbus 3021
3502 GA Utrecht

NWO
Postbus 93138
2509 AC Den Haag

NORWAY

Det Norske Forskningsråd
Naturvitenskap og teknologi
Postboks 2700, St. Hanshaugen
0131 Oslo

POLAND

Polish Academy of Sciences
Pl. Defilad 1
00 901 Warszawa

Ministry of Scientific Research and Information Technology
00-529 Warszawa
ul. Wspólna 1/3

Ministry of National Education and Sport
00-918 Warszawa
al. Szucha 25

National Atomic Energy Agency
ul. Krucza 36
00-921 Warszawa

PORTUGAL

Fundação para a Ciéncia e Tecnologia
Av. D. Carlos I, 126 – 1 e 2
1249-074 Lisboa

Internacionais da Ciênciae Ensino Superior
Rua Castilho, 5, 4
1250-066 Lisboa

Academia das Ciências de
Rua da Academia das Ciências, 19
1249-122 Lisboa

SPAIN

Consejo Superior de Investigaciones Cientificas
Serrano, 113
28006 Madrid

Direccion General de Investigacion
Ministerio de Educacion y Ciencia
Paseo de la Castellana 160
28071 Madrid

SWEDEN

Naturvetenskapliga Forskningsrådet
Box 7142
S-10387 Stockholm

Swedish Research Council
103 78 Stockholm

SWITZERLAND

Schweizerischer Nationalfonds
Wildhainweg 20
Postfach
3001 Bern

UNITED KINGDOM

Engineering and Physical Sciences Research Council
Polaris House
North Star Avenue
Swindon SN2 1ET

Office of Science and Technology
1 Victoria Street
London SW1H 0DE

PPARC
Polaris House
North Star Aavenue
Swindon SN2 1SZ

CCLRC
Chilton
Didcot OX11 0QX

How to Contact Nuclear Physics Institutes in Europe

Austria

Institut für Materialphysik
der Technischen Universität Graz
Petersgasse 16/IV
A-8010 Graz
Phone: +43 316 873/84 81
Fax: +43 316 873/89 80

Institut für Theoretische Physik
der Technischen Universität Graz
Petersgasse 16
A-8010 Graz
Phone: +43 316 873/81 71
Fax: +43 316 873/86 77

Institut für Theoretische Physik
der Universität Graz
Universitätsplatz 5
A-8010 Graz
Phone: +43 316 380/52 25
Fax: +43 316 380/98 20

Institut für Theoretische Physik
der Universität Innsbruck
Technikerstraße 25
A-6020 Innsbruck
Phone: +43 512 507/62 01
Fax: +43 512 507/29 19

Stefan Meyer Institut
für subatomare Physik
der Österreichischen Akademie
der Wissenschaften
Boltzmanngasse 3
A-1090 Wien
Phone: +43 1 310 86 16
Fax: +43 1 310 88 01

Atominstitut
der Österreichischen Universitäten
Stadionallee 2
A-1020 Wien
Phone: +43 1 58 80 11 41 01
Fax: +43 1 58 80 11 41 99

Arbeitsbereich Kernphysik und
nukleare Astrophysik:
Wiedner Hauptstraße 8-10
A-1040 Wien
Phone: +43 1 58 80 11 42 01
Fax: +43 1 58 80 11 42 99

Institut für Isotopenforschung und
Kernphysik
der Universität Wien
AMS-Anlage VERA
Währinger Straße 17
1090 Wien
Phone: +43 1 42 77/51 70 1
Fax: +43 1 42 77/95 17

Institut für Theoretische Physik
der Universität Wien
Boltzmanngasse 5
A-1090 Wien
Phone: +43 1 42 77/51 50 1
Fax: +43 1 42 77/95 15

Belgium

Rijksuniversitair Centrum Antwerpen
Departement Wiskunde en Informatica
Campus Middelheim, Building G, Middelheimlaan 1, B-2020 Antwerpen
Phone: +32 3 265 39 03
Fax: +32 3 265 37 77

Université Libre de Bruxelles
Physique Nucléaire Théorique et Physique Mathématique
Campus de la Plaine - CP 229
Boulevard du Triomphe
B-1050 Bruxelles
Phone: +32 2 650 55 62
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