Letter from the FAIR Coordinator

SPOTLIGHTS

FAIR Technical Director appointed

New Chairman for the AFI Working Group

Prospects regarding Civil Construction

FAIR in The Press

Visit of Ministerpraesident of the Land Hessen (State of Hesse), Dr. Roland Koch, to GSI

MEMBER STATES

France - FAIR Technical Discussions

India - Kolkata-Campus and GSI Join Forces for FAIR

Italy - First Meeting on Italy FAIR contributions
FAIR AND THE EUROPEAN UNION

EU projects for FAIR

FAIR COMMITTEES AND WORKING GROUPS

AFI Working Group

STI and FAIR Baseline Technical Report (BTR)
(Dr. Horst Wenninger - CERN)

EXPERIMENTS

PANDA
(Prof. U. Wiedner - University of Uppsala)

Meetings, Events, Links

The FAIR Calendar 2006

Masthead
Letter from the FAIR Coordinator

Dear Members of the FAIR Community,

It is a great pleasure to begin the second Newsletter with the news which came on February 22nd, 2006, from the German ministry BMBF: The German Government has entered its share to the budget for FAIR into its long term budget for the years 2007 to 2014. This is quite unusual for German science budgeting and gives the science community a solid base for planning. Assuming that the international contracts are finalized this would mean that the construction of FAIR will officially start in 2007. We would like to congratulate all the persons in the BMBF who achieved this remarkable milestone.

Another significant milestone in the history of FAIR was reached on March 30th, 2006: the shipment of the Baseline Technical Report for FAIR (FAIR BTR) to the members of the International Steering Committee of FAIR (ISC) for their meeting on April 11th, 2006. On more than 3000 pages the accelerator project, the scientific and technical infrastructure and the scientific programme as well as the civil engineering are defined and presented. The Technical Proposals of the experiments had been evaluated by the 3 programme advisory committees (APPA-PAC, NUSTAR-PAC, QCD-PAC) and the 750 pages Technical Report on accelerators had been evaluated by the Technical Advisory Committee TAC (note: all the members of these committees were presented in FAIR Newsletter N°1). On April 11th, 2006, the ISC-members will evaluate their findings and decide - hopefully in the next ISC meeting two months later - on the overall scope of the FAIR project.

The AFI Working Group (Administrative and Financial Issues) reports that the Convention and Articles of Association for a FAIR GmbH are ready for final reading. The signature of a Final Act document by the member state governments is targeted for end of this year (see article below).

An important step for FAIR is the arrival of Dr. Dieter Kraemer on January 1st, 2006. After the approval by the ISC and the Supervisory Board of GSI, Dieter Kraemer has been appointed Technical Director of the FAIR Project and Head of the newly created GSI-FAIR Division (see extra article in this issue). He has supervised the final editing of the accelerator part of the Technical Report and already participates in all technical negotiations with the FAIR partners. Official technical negotiations on accelerator contributions took place recently with France, Italy and India and are progressing well (see articles below).

I wish you a fine spring time after this long cold winter.

Best regards,

Hans H. Gutbrod

FAIR Coordinator
**SPOTLIGHTS**

**FAIR Technical Director appointed**

After the approval by the ISC and the Supervisory Board of GSI, Dr. Dieter Kraemer has been appointed Technical Director of the FAIR Project and Head of the newly created GSI-FAIR Division. He joined the FAIR Project on January 1st, 2006 with an interim period of 6 months, where he part-time deputy technical director of BESSY II in Berlin.

Dieter Kraemer was in the group of the Max Planck Institute of Nuclear Physics in Heidelberg that built the ion storage ring TSR. During his employment with BESSY in Berlin he led the construction of the Synchrotron-Radiation source BESSY II. Since then he was head of the BESSY accelerator R&D group and leader of the BESSY-FEL Design Group.

The FAIR Project Team welcomes Dieter on board and wishes him all the best for his new job.

**New Chairman for the AFI Working Group**

At the AFI Meeting (Administrative and Financial Issues Working Group) January 16th, 2006 the AFI-members elected Prof. Orjan Skeppstedt, former director of the Manne Siegbahn Institute in Stockholm, Sweden, new Chairman of AFI. He succeeds Dr. Hermann-Friedrich Wagner, who led the group for about two years up to November 30th, 2005.

Prof. Skeppstedt is an internationally recognized atomic and nuclear physicist and acted already as representative of Sweden within the AFI Working Group.

The members of the FAIR Project extend a warm welcome to the new chairman and wish him all the best for his new task. The photo shows Prof. Skeppstedt (left) together with Dr. Vierkorn-Rudolph from the German Ministry of Research and Education and Ass. Prof. Thomas Beier (AFI scientific secretary) during the 10th AFI-Meeting on January 16th, 2006.
Prospects regarding Civil Construction

End of March the contracted engineering BUNG company, Heidelberg, provided the civil engineering input for the FAIR Baseline Technical Report concerning. The report covers site plans, drawings of buildings, cost estimates and a time schedule for the design and construction phase. Furthermore it contains descriptions of logistics, building sites and terrain modelling.

One of the essential conclusions of this report is that the civil engineering will - due to its complexity - largely define the time schedule and scope of the stages of the FAIR construction. In order to avoid unnecessary delays civil engineering will proceed along the following actions:

- Preparation of the tenders for Project Controllers and General Planners,
- Generation of a so-called ‘Room Book’ containing information and specifications on individual rooms/facilities/areas of the FAIR buildings, based on the requirements from the project and its users,
- Detailing of the load list with regard to heating, ventilation, air conditioning or refrigeration (HVAC&R), water consumption/use and energy consumption/use,
- Energy studies for overall and industrial energy efficiency and distribution and studies of environmental performance,
- Core drillings to obtain samples for geotechnical analysis.
Lately, the FAIR project enjoyed great coverage in the local media, mainly due to the visit of the Ministerpraesident of the Land Hessen (State of Hesse), Dr. Roland Koch, to GSI in Darmstadt in mid February. He followed an invitation from 2005 and made a guided tour through the facility where he could gather a lot of information about GSI and the FAIR Project.

During his visit he repeated his statement that the Land Hessen, to which the town of Darmstadt and the future FAIR site belong, will carry 10% of the investment cost for FAIR.

The picture shows Ministerpraesident Dr. Roland Koch (second from left) together with the GSI directors Prof. Walter F. Henning (left) and Dr. Alexander Kurz (right) and Joachim Schroth from the University of Frankfurt (second from right).
INDIA: Kolkata-Campus and GSI Join Forces for FAIR

Bikash Sinha, director of VECC (Variable Energy Cyclotron Center) and SINP (SAHA Institute of Nuclear Physics), both in Kolkata, signed a bilateral MoU (Memorandum of Understanding) during H. Gutbrod's visit to India December 2005. The picture shows Dr. Sinha and members of the Indian Delegation on the day of signature, December 08th, 2005 in Kolkata. The VECC is ready to design and construct the 4 superconducting dipole magnets, each weighing 80 tons, for the Energy Buncher behind the Super-FRS. In addition, VECC works on the design of the critical beams stoppers inside the Super-FRS. SAHA Institute plans to build the NewLand detector for neutron time of flight measurements in the R3B setup. Participation in CBM is foreseen by the well-known VECC high energy nuclear collision team which for many years has been working at CERN (Switzerland) and Brookhaven Laboratory (USA).

To learn more about VECC and SINP:

VECC: [http://www.veccal.ernet.in](http://www.veccal.ernet.in)

SINP: [http://www.saha.ac.in](http://www.saha.ac.in)
ITALY: Research & Development for FAIR

Italy participates with a strong team in PANDA and is a driving force in the development of the programme of polarized anti-protons at FAIR, proposed by PAX and ASSIA. The meeting in Rome at the INFN (Istituto Nazionale di Fisica Nucleare) headquarter January 18th, 2006, focused on the Italian contribution to the accelerator projects of FAIR: R&D and prototyping of the SIS 300 high field superconducting dipole. A MoU (Memorandum of Understanding) is in preparation detailing the work of 40 man years and 3.7 million € material costs, born by Italy. A second meeting took place on March 14th, 2006 at GSI with Dr. P. Fabbricatore being in charge of the R&D project. The concept of a curved 4.5T sc dipole instead of a 6T dipole is under discussion.

To learn more about INFN Institutes:

http://www.roma1.infn.it/en/index.html
FRANCE: FAIR Technical Discussions

November 28th, 2005 and March 28th, 2006, French and German delegations met at GSI in order to discuss French contributions to FAIR and German contributions to SPIRAL2.

In the FAIR project France announced great interest in the design and construction of the high magnetic field quadrupoles for SIS 300 as well as in all aspects of cryogenics. In addition a copy of the famous IPHI (Injecteur Protons Haute Intensité) proton-ion source is being discussed as injector for the proton-linac at FAIR.

To learn more about IPHI:

http://www.esrf.fr/conferences/ARW/proceedings/TUEPM/Beauvais.pdf
http://epaper.kek.jp/e00/PAPERS/THOAF202.pdf

To learn more about SPIRAL2:

http://ganinfo.in2p3.fr/research/developments/spiral2/
EU projects for FAIR

The support of the European Commission for FAIR plays a very important role in the preparatory phase prior to the start of construction. The two FAIR EU contracts (Design Study and Construction of New Infrastructures) contribute with 19.4 M€ to the project. The Integrated Infrastructure Initiatives (I3) HadronPhysics, EURONS and CARE have a significant, FAIR related contribution as well. The EU contracts and funding go to GSI as well as to many of the partner institutes involved in FAIR. The support of the European Commission is very much appreciated and highly effective in strengthening the international collaboration within FAIR.

<table>
<thead>
<tr>
<th>EU contract</th>
<th>Coordinator</th>
<th>EU financing total [M€]</th>
<th>EU financing FAIR related [M€]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FAIR Design Study</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;DIRACsecondary-Beams&quot;</td>
<td>GSI</td>
<td>9.0</td>
<td>9.0</td>
</tr>
<tr>
<td><strong>FAIR CNI</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Construction of New Infrastructure) &quot;DIRAC-PHASE-1&quot;</td>
<td>GSI</td>
<td>10.4</td>
<td>10.4</td>
</tr>
<tr>
<td>EURONS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I3 on Nuclear Structure</td>
<td>GSI</td>
<td>14.0</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>HadronPhysics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I3</td>
<td>INFN</td>
<td>17.4</td>
<td>10.8</td>
</tr>
<tr>
<td>CARE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I3 on Accelerator R&amp;D</td>
<td>CERN</td>
<td>15.2</td>
<td>0.4</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>32.6</strong></td>
<td></td>
</tr>
</tbody>
</table>

The EU study "DIRACsecondary-Beams"

The Annual Report for the FAIR-EU Design Study has recently been submitted to the European Commission. It covers the first reporting period from February 2005 to January 2006. This EU project addresses design and development of an important scientifically and technically challenging aspect of FAIR: **Internal target experiments with stored and cooled high-energy secondary beams** (radioactive ions and antiprotons).

The work includes the design challenges in complex in-ring experimental setups. These are the PANDA detector for antiprotons in the HESR, the Collector Ring (CR) and New Experimental Storage Ring (NESR) for in-ring reaction experiments of NUSTAR. Since the production of intense secondary beams requires high intensity primary beams, the design of the SIS100 synchrotron is an important component of this Design Study as well.

To learn more about the Design Study:

[http://www.gsi.de/fair/EU-Design-Study/](http://www.gsi.de/fair/EU-Design-Study/)
Committees and Working Groups

AFI Working Group

The AFI working group is preparing the legal and contractual documents that will be part of the international agreements concerning FAIR. Some important developments happened since the presentation in the last Newsletter. First of all, Prof. Orjan Skeppstedt from the Manne Siegbahn Laboratory in Stockholm took over the AFI chair from Dr. Hermann-Friedrich Wagner (see article above). Also in November the German government issued a document containing key points regarding their position with respect to FAIR. Departing from the position Germany put forward in the past, they

"... are now seeking to establish an independent FAIR Company for constructing and operating the facility alongside GSI for legal and general science policy reasons. This won't affect the rights and obligations of the international partners as discussed in AFI and ISC. GSI as a member of the Helmholtz Association should play a reliable role in the construction and operation of the FAIR facility.

a) The FAIR Company and GSI will collaborate closely in the construction, commissioning and operation of FAIR. .... The FAIR Company and GSI will conclude a detailed agreement specifying all deliverables which GSI will provide to the FAIR Company during all phases of the project.

b) Germany expects GSI to continue its role in further development of the FAIR facility (accelerator, beam lines, experiments)."

AFI was given the task to investigate whether they see any show stoppers to this approach. The opinion of AFI is that such a coexistence of two companies during the construction phase is possible and that the best benefit is gained with the following key issues:

- FAIR GmbH is going to be the project owner and will have the overall project responsibility.
- All contributions will flow to the FAIR GmbH, both, in-cash and in-kind.
- FAIR GmbH will define the scientific and technical strategy and be responsible for the R&D programme of FAIR and its further developments.
- Scientific-technical operative units should not be established within the FAIR GmbH. The partners will carry out the scientific and technical tasks under the guidance of the FAIR GmbH.
- GSI will be one key player among these partners.
It is proposed that GSI will carry out essential parts of the project for the FAIR GmbH and act for the FAIR GmbH by virtue of general power of attorney granted to it.

For this, a contract for services in the sense of an agency contract ("Geschäftsbesorgungsvertrag") should be concluded between FAIR GmbH and GSI mbH, analogous to the relation between a "builder owner" and an "architect with operative tasks".

An essential boundary condition is the status regarding taxes. FAIR GmbH has to be an entrepreneur in the sense of the German Sales Tax Act ("Umsatzsteuergesetz") in order to be able to fully deduct VAT (by reimbursement through the fiscal authorities). This requires activities in generating income, even if the intention to achieve a profit is not central.

Such essential elements for achieving income are provided by the Articles of Association, e.g. concerning intellectual property rights, the accession of new members, etc. To secure this point GSI suggests to request a binding statement from the fiscal authority. This should also include the confirmation of the tax status of public utility for the FAIR GmbH as well as for the GSI mbH.

Another important aspect regarding the forthcoming FAIR GmbH is the funding issue. According to the opinion of AFI and also to the above mentioned key-point document issued by Germany, the number of shares in the FAIR GmbH should be determined on the basis of the partners’ respective financial contributions to the construction as well as to the operation phase. Within FAIR GmbH’s Council (i.e. the Shareholders’ Assembly of the FAIR GmbH) the weight of each partner’s vote should correspond to his shares in the FAIR GmbH. However, decisions of strategic (in particular financial) importance should only be taken by a qualified majority (i.e. a minimum of shares and a minimum of delegations). Very important decisions should be taken by unanimity only.

A draft of the Convention for the FAIR GmbH has been finished by AFI. Also the Articles of Association are expected to be finished as a draft during the next meeting on April 25th, 2006. Besides the items already mentioned two issues remain important: the organs of the new FAIR GmbH and the initial duration of the Convention. The organs are planned to be the Council and the Managing Directors. Contrary to German tradition there will not be a Supervisory Board (in Germany customary for large industrial GmbHs). As for the initial duration of the Convention it is intended to last up to December 31st, 2025. Prolongation of ten years is foreseen after reviews on the scientific and technical programme of FAIR.

As a treaty, the Convention will require a lengthy ratification by the parliaments of the participating countries. It is foreseen to put it into force provisionally by a so-called Final Act which is presently being worked out by AFI. A similar procedure had already been applied at the European Synchrotron Radiation Facility ESRF in Grenoble, France.

Currently the AFI group is also working on the Annexes to the Convention which will contain the technical specifications, the cost and the time schedule for the construction. These Annexes will be derived from the FAIR Baseline Technical Report. Other Annexes are the Articles of Association, general objectives to be concluded between the FAIR
GmbH and the GSI mbH (due to the two-company solution) and a document about the procedure of acceptance and evaluation of in-kind contributions.

Last but not least there was a good reason for celebration, which is the successful conclusion of the work of the AFI subgroup on Full Costing Issues (AFI-FCI). A final meeting took place December 13th, 2005 and the group issued a Final Report of 175 pages, 143 pages of annexes included. AFI was highly pleased with their work and forwarded this report together with its own comment to the International Steering Committee (ISC). The task of AFI-FCI was to evaluate the methods and elements of cost calculation and the evaluation of the management standards and procedures. They came to the conclusion that the methods to be implemented for FAIR at GSI are sufficient and state-of-the-art. Essential in their findings is that the methods of estimating and optimizing the construction costs (by the PACs, TAC, and the COREs) seem to be fully satisfying.

A mathematical analysis of cost risk for the accelerators led to a risk budget value of 22% for the construction costs. This seems to be rather high in an international context and so the International Steering Committee is asked to make a decision. One issue of concern for both, FCI and AFI, is that so far no provisions for an own experimental programme of the FAIR GmbH have been made within the cost evaluation for the operating budget.

Further meetings of AFI are planned on April 24th/25th, 2006 at GSI (together with AFI for the XFEL project) and on June 27th/28th, 2006 at DESY (also together with AFI-XFEL). Another meeting is provisionally scheduled for May 17th/18th (see link: FAIR Calendar). AFI plans to finish the Articles of Association, the Final Act, and the Annexes to the Convention (including the objectives of the contract between FAIR and GSI). Also the By-Laws are planned to be tackled and finished during this period.
As chairman of the FAIR Science and Technical Issues (STI) working group it is my
privilege and pleasure to announce and comment on an important milestone reached by
the FAIR project team: In collaboration with the 2500 scientists and proponents of the
FAIR basic physics experiment programmes and with support of the many international
accelerator experts in the advisory groups, the FAIR project team completed and
published by end of March 2006 the


Six volumes of the Report document detailed aspects of the FAIR accelerator complex in
its new optimized layout and describe the 18 experiment proposals forming the basic
physic programmes of FAIR. The table below shows the structure of the FAIR Baseline
Technical Report and the contents of each volume:

<table>
<thead>
<tr>
<th>Volume</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume 1</td>
<td>Executive Summary</td>
</tr>
<tr>
<td>Volume 2</td>
<td>Accelerator and Scientific Infrastructure</td>
</tr>
<tr>
<td>Volume 3A</td>
<td>Experiment Proposals on QCD Physics</td>
</tr>
<tr>
<td>Volume 3B</td>
<td>Experiment Proposals on QCD Physics</td>
</tr>
<tr>
<td>Volume 4</td>
<td>Experiment Proposals on Nuclear Structure and Astro Physics (NUSTAR)</td>
</tr>
<tr>
<td>Volume 5</td>
<td>Experiment Proposals on Atomic, Plasma and Applied Physics (APPA)</td>
</tr>
<tr>
<td>Volume 6</td>
<td>Civil Construction and Safety</td>
</tr>
</tbody>
</table>

Volume 2 of the Baseline Technical Report describes with 400 authors the new FAIR
accelerator complex, beams, rings and layouts. The introductory remarks to this volume
outline well the development from the original proposals in 2001 to the present FAIR
project proposal. It is the result of a 4 years' joint international effort to converge
towards an optimized FAIR facility with rich physics potential. These remarks read as
follows:
"Based on the experience of the existing GSI facility and adopting new technical concepts in phase space cooling and fast cycling superconducting magnets, an international Facility for Antiproton and Ion Research FAIR has been proposed in 2001. The basic ideas of the facility and unprecedented possibilities offered by FAIR have been described in the Conceptual Design Report (CDR).

Within the last 4 years intensive investigations were carried out in order to optimize the facility with respect to the technical layout and spatial arrangement on the GSI site, to investigate the beam parameters for ion and antiproton beams, and to evaluate the costs. This work caused some modifications with respect to the original proposals in the CDR; amongst them the readjusting of the beam rigidity from 200 Tm to 300 Tm in one of the superconducting synchrotrons (SIS300) and the need for an additional storage ring (RESR) to achieve the required accumulation and cooling performance. Modifications and optimizations to the layout were worked out resulting in modifications to the injection and extraction positions of the synchrotrons. Furthermore, it was decided to inject antiprotons into HESR always at 3 GeV energy and accelerate/decelerate in the HESR. This allows direct injection of antiprotons from the RESR to the HESR, without a complicated re-injection into the synchrotrons, also leading to a rearrangement of the high energy beam transport system.

The costs in the CDR were derived from a top-down approach. To achieve a most solid cost basis for the project a detailed bottom-up cost estimate that takes into account the detailed component costs was chosen. The project investment costs then were reviewed by the Technical Advisory Committee (TAC) and the CORE-A committee, while cost-driving issues as room-temperature and superconducting magnets, power converters, cryogenics and proton-linac were evaluated in addition in dedicated reviews (mini-TACs). The committee-members advice and suggestions finally were included in the Cost Book.

Experiment collaborations have provided the detailed descriptions of technical proposals for their respective experiments described in Volumes 3 to 5. Each technical proposal of an experiment generally starts with an outline of the physics goals, the experimental concept and the type of beam performance and luminosities required to meet the physics objectives. The introduction is followed by chapters describing the experimental setup and technological challenges, the implementation and installation procedures envisaged, the commissioning and operations phase, aspects of safety, organization and responsibilities, planning, relations to other experiments and related topics. These volumes provide an excellent overview on the physics potential inherent in the FAIR project. Volume 6 finally covers civil construction and safety, which are also important topics but probably less sexy to read.

The executive summary (Volume 1) and a special 7th document treating cost, schedule and manpower issues, aspects of project management, project tools, and project procedures will be presented to the International Steering Committee in April together with documents from the advisory committees AFI and STI.

The FAIR Basic Technical Report is also available on a CD for those interested readers who don’t want to carry home 10 kg of paper documentation.
In every Newsletter we plan to have some brief comments on one of the planned research programmes. We start out with the research programme PANDA.

**PANDA**

*Prof. U. Wiedner (U Uppsala)*

**Understanding the creation of mass – the PANDA experiment at FAIR**

We believe that we have identified the fundamental building blocks of nature. Some of them, the quarks, exist only as compounds. Particles that are made up of two or three quarks are called hadrons of which the proton is perhaps the best-known example. Naively the mass of a hadron would be expected to nearly reveal the sum of the mass of its building blocks. However, it turns out that this assumption is far from reality. In the case of protons the mass of the building blocks adds up to only a few percent of the proton mass. The rest of the mass must be generated in a different way. The only explanation is that the interaction between the quarks generates this mass. The planned PANDA experiment at FAIR will study precisely how mass is generated by the strong interaction that acts between the quarks.

The PANDA experiment will be done in a unique way by using "antimatter". Why antimatter? When an antimatter particle hits its matter counterpart, Einstein’s famous equivalence between matter and energy kicks in: Antimatter and matter annihilate each other, producing a fireball of energy. This energy is released partly in form of other fundamental particles, called "gluons", which are the particles that bind quarks together through the strong interaction. Therefore a systematic study of the role of gluons in hadrons might reveal the secrets of mass generation due to the strong interaction.

If our understanding of the strong interaction is true, gluons can also form particles. Particles made only of gluons are called "glueballs". Since the annihilation of antimatter with matter produces so many gluons, it is likely that glueballs will form in such a reaction. PANDA is designed to detect these glueballs and measure their masses and other properties. How is this done? Particles like glueballs usually live so briefly that they cannot be measured directly. But the particles into which they decay can be identified and their energies and momenta are measured. This information then allows us to reconstruct the glueball properties.

The PANDA collaboration was formed in 2002. It consists of about 400 physicists from 49 institutions in 16 countries. The PANDA detector itself is a most modern particle physics detector and is located inside the HESR storage ring for antiprotons. It is within this detector that antiprotons circling inside the HESR ring hit protons or other nuclei that cross their path. Since we yet do not know into which particles a glueball decays, the PANDA detector must be able to measure all types of particles. This makes the detector rather complicated equipment. And because these particles are flying in all directions the detector has to surround the target as completely as possible. An additional challenge is the fact that glueballs are a rare species and thus many billions of events must be recorded before a glueball signal can be proven. In the case of PANDA, the detector has to handle 10 million annihilations every second.
Meetings, Events, Links

FAIR Calendar

http://www.gsi.de/gsitools/fair_e.shtml

Useful Links

FAIR in the Internet:
http://www.gsi.de/fair/index_e.html

How to get to GSI:
http://www.gsi.de/informationen/users/verkehr/index_e.html
Masthead

**Contact**

FAIR Coordination Office  
Building C 24  
Planckstraße 1  
D-64297 Darmstadt  
Phone  +49-(0)61 59-71-14 34  
Fax  +49-(0)61 59-71-39 16  
Mail  fair-newsletter-admin@gsi.de

**Editor in Charge**

Martina Hinkelmann  
FAIR Coordination Team  
(The authors named are responsible for the contents of their articles.)

**Next issue**  
July 2006