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Greetings from the Leader of the FAIR Joint Core Team

Dear all,

The FAIR project has been launched! Hurrah! With celebration of the FAIR Start Event in November (see below) the project has made an important step towards its realization: The International Steering Committee (ISC) of FAIR agreed with the German Federal Ministry of Education and Research, that the present amount of international contribution is not yet covering the required minimum contribution of 25% of the full project, but with 20.5% sufficient to officially announce the beginning of the project. 10 representatives of FAIR countries signed a communiqué (see below) and encouraged other countries to join the project and to declare their contributions to arrive at a full realization of the FAIR project as outlined in the Baseline Technical Report. The Start ceremony was attended by about 1400 of you and the scientific seminar on the second day saw about 500 participants. It is great to see the flags of 15 FAIR countries waving in the wind in front of the GSI main building: From now on FAIR is reality.

Furthermore, I can announce that with Slovenia we welcome a 15th member in the FAIR community. Slovenia joined recently, just prior to the FAIR Start Event, by declaring to participate with 1% in the construction and operation of FAIR.

We also made big steps forward in finding partners who will build the accelerator complex and the scientific infrastructure for FAIR. A call for "Expressions of Interest" (EoI) for providing in-kind contributions for the construction of the FAIR facility had been sent out on October 10, 2007, following the first FAIR accelerator laboratory directors meeting on October 1-2, 2007. The response was a big success and up to now we received about 20 EoIs, which will be discussed at the next 'In Kind Advisory Board’ (IKAB)-meeting on January 8, 2008 and followed up in the 2nd laboratory directors meeting in Protvino, Russia on January 15 and 16, 2008. Its recommendations are subject of being heard and approved by the ISC members on their next meeting on February 19, 2008. The year 2008 should then see the signing of the convention by the FAIR countries and the formation of the FAIR GmbH by late spring or early summer 2008.

From December 10, 2007 I will be assisted by Prof. Zbigniew Majka as the new head of Research in the Joint Core Team and by Annelie Lambert as head of administration in the JCT. Dr. Alexander Kurz had been called for higher duties in the German Research system and I thank him for his tremendous personal engagement and involvement in FAIR. (see below for more information about these particulars)

Finally, we from the Joint Core Team are very grateful for the EU commission who will pay our salaries for the coming 30 months through their 7th Framework Programme (FP).

These are all reasons for me to thank you all who jointly made all efforts to contribute to this tremendous success and I would like to wish you all the best for the New Year. It will be an important one for FAIR as we have now entered the project phase and the FAIR International Steering Committee (ISC) will perform the remaining preparations for the upcoming foundation of FAIR GmbH.

Sincerely yours,

[Signature]

December 2007
FAIR – Project officially started
The FAIR Start Event November 7, 2007 and the FAIR Communiqué

Within the framework of the FAIR Start Event November 7, 2007 the start of the FAIR project – Facility for Antiproton and Ion Research has officially been announced. Representatives of the FAIR partner countries jointly declared the beginning of the realization of the FAIR project in Darmstadt. Up to this date the majority of the FAIR partner countries have issued statements on their intended contributions for funding the FAIR facility and its operation later on.

By invitation of the German Federal Minister of Education and Research, Dr. Annette Schavan and the Hessian Minister President Roland Koch, numerous high-ranking personalities from international science and politics came over to GSI to celebrate this milestone of starting the FAIR project.

As highlight of this event the signatory representatives from Austria, Spain, Finland, France, Poland, Romania, The Russian Federation, Sweden, Germany and the State of Hesse signed a joint

FAIR Communiqué

Prior to this event a new partner country joined the FAIR Community: Slovenia. Its government declared to participate with 1% to the total investment costs of 1.2 Billion Euros. Unfortunately, no official representative was able to attend so quickly the ceremony for signing the communiqué.
FRRC – FAIR Russia Research Center in Moscow

September 18, 2007, the FAIR project celebrated a milestone on establishing a real international FAIR research community: This day saw the foundation of a FAIR Russia Research Center (FRRC) in Moscow.

The FRRC is the result of joint efforts of the Russian Federal Agency for Atomic Energy Agency "Rosatom" and the German "Helmholtz Association", who decided on funding this centre in equal shares in Moscow for a better coordination of the Russian contributions to FAIR and for creating a centre of exchange of the different scientific communities of FAIR. It will have its domicile in Building 40 of the premises of Alikhanov Institute of Theoretical and Experimental Physics (ITEP) in Moscow, led by director Prof. Boris Sharkov. An award scheme will be installed to especially decorate excellent young Russian scientists and to motivate them to stay in the field of science. On December 6th, 2007 the FRRC council appointed Boris Sharkov and Hans H. Gutbrod to director and co-director of the FRRC.

FAIR Monthly

The first meeting "FAIR Monthly" in the year 2008 will take place Tuesday, January 22, 2008, as usual at GSI in the lecture hall and at 02:00 pm.
In their meetings on September 12 and October 17, 2007 the FAIR-ISC made decisions mandatory for FAIR entering from the MoU phase into the project phase. These decisions on a certain start project and budget were necessary for the official launch of the FAIR project on November 7, 2007.

In addition, Dr. Jacek T. Gierliński from the Ministry for Science and Higher Education of Poland has been elected as new chairman of the FAIR-ISC. He follows Dr. Herrmann Schunck who was very supportive from the beginning of the FAIR project when he served in the German Federal Ministry of Education and Research. The FAIR Joint Core Team applauds his great vision and is very grateful for the strong support he gave to the project.

The new chairman Jacek T. Gierliński, educated in Poland, gained his master degree in civil engineering in 1968 and his doctoral degree in technological sciences in 1975. After 10 years as scientist in the field of continuum mechanics at the Polish Academy of Sciences he continued his scientific career at the University of Southampton (UK) as a post-doctoral research fellow in the area of computational mechanics. He then worked for 20 years with a technology consultancy Atkins plc based in Epsom, UK, later as chief consultant. While there he was awarded the Royal Society Industrial Fellowship at the University College, London.

Since 2004 he has been working at the Polish Ministry of Science and Higher Education where he held posts of the director of European Integration, an advisor and the plenipotentiary for international collaboration to the minister. Dr. Gierliński is a Polish delegate at several European Union advisory bodies and Vice-chair of the ESFRI Executive Board.
At their meeting on December 10, 2007 at GSI the ISC members also decided on the following interim appointments on FAIR Joint Core Team personnel:

Prof. Zbigniew Majka has been appointed as Head of Research in the management of the FAIR Joint Core Team.

Zbigniew Majka, born 1946 in Rzeszow, Poland made his studies of physics at Jagiellonian University in Cracow. Since 1996 he is Professor of physics and Head of the Hot Matter Physics Division there. He joined the FAIR Joint Core Team in October 2007 as official representative from the FAIR partner country Poland.

As for his science career he already looks back on stays in USA and Germany: As postdoc he worked with the Forschungszentrum Karlsruhe (former "Kernforschungszentrum Karlsruhe"). As visiting scientist resp. visiting professor he worked at Lawrence Berkeley Laboratory, Washington University and at Texas A&M University. He specialized in experimental nuclear physics and relativistic heavy ion collisions. His recent research has been conducted within the BRAHMS Collaboration at RHIC. He participates in the CBM experiment at FAIR.

We regret having to announce that the Administrative Director of GSI and Head of Administration of the FAIR Joint Core Team, Dr. Alexander Kurz, left GSI to take on another challenge at Forschungszentrum Karlsruhe. Nevertheless, we are happy to see Dr. Annelie Lambert taking over the tasks of Dr. Kurz within the FAIR Joint Core Team for the time being. This was agreed upon in the latest ISC-meeting in December.

Annelie Lambert terminated her studies of law at the University of Saarland (Saarbruecken, 1. state examination) and at the University of Zweibruecken (Rhineland-Palatinate, 2. state examination). Heading for abroad she worked as administrator in the research office of the University of West England in Bristol, UK, and later took on responsibilities as assistant to the head of administration at the Institut Laue Langevin (ILL) in Grenoble.

Prior to joining GSI she worked with Forschungszentrum Karlsruhe as legal advisor.

Annelie Lambert joined GSI in 2005 as head of the legal service. So far she has considerably contributed to the FAIR project through her activities in the AFI (Administrative and Financial Issues) committee of FAIR.
Last but not least, next steps to be made in 2007 and up to mid 2008 have been foreseen as follows:

- **Formation of consortia for in-kind projects for FAIR**

  In order to bundle know-how and funds for in-kind contributions for FAIR, the formation of consortia may be of advantage in the case that one country cannot take on a full work package alone. Corresponding negotiations are on the way.

- **Collection of still missing declarations/commitments**

  It is required from the foreign partners who have signed the FAIR Memorandum of Understanding to hand in a written declaration stating the percentage the country is prepared to contribute to the construction and operation of FAIR, either as in-kind or cash contribution or as a mixture of both.

- **Nomination of shareholders by all contracting parties**

  It is required to appoint institutions, authorities or legal entities who will be the shareholders of the FAIR GmbH. These will be nominated by the 15 FAIR member countries, who will sign the FAIR convention then. This convention, together with the Articles of Association are the papers which contain all issues to be concluded in writing which are necessary to establish and to agree upon an international company FAIR GmbH.

- **Establishment of two search committees for the FAIR Director and the Head of Administration for the FAIR GmbH.**

  The formation of these two search committees has been started at the December meeting of the FAIR-ISC.
Technical Advisory Committee (TAC)-Meeting at GSI

A meeting of the Technical Advisory Committee (TAC) for FAIR took place at GSI from June 11th - 13th, 2007. It was for the first time chaired by Roland Garoby (CERN) who succeeded Yanglai Cho in this function.

The international expert committee evaluated the progress that has been made in the technical preparation of the FAIR accelerator facility since the publication of the FAIR Baseline Technical Report in March 2006.

During the first day the status quo of the FAIR project itself and the machine planning was presented by members of the FAIR Technical Division and the GSI management. The second day was dedicated to the reports of the Chairmen of the various miniTACs, highlighting special technical aspects of FAIR prior to the TAC meeting. The miniTACs covered: the proton-Linac, power converters (both chaired by R. Cutler), radio frequency (RF, chaired by R. Garoby), civil construction (chaired by L. Miralles), beam instrumentations and controls (chaired by H. Schmickler), superconducting magnets and cryogenics (chaired by T. Taylor), lattice and beam dynamics (chaired by F. Willeke).

The TAC Chairman emphasized in his final report that the committee was impressed by the significant progress of the preparatory works having been elaborated together with the FAIR partners.

With this meeting the TAC finished its advisory work. With the official start of the FAIR project in November 2007 a new "Machine Advisory Committee" (MAC) will be established to follow the TAC.
FAIR Civil Construction

Status of FAIR Civil Construction Activities

Civil construction activities for FAIR have started early this year. Already in May the subsurface investigations on GSI premises had begun. With all in all 50 drillings these investigations shall be terminated in March 2008.

Moreover, building C24 has been expanded and a new building C27 has been erected nearby. There will be now about 125 new working places for existing and new FAIR staff in these two buildings.

An important procedure of approval for realizing FAIR civil construction is the "Z-Bau"-procedure, imposed by law whenever large amounts of Federal money are used for civil construction. The procedure obliges the applicant body to undergo 10, respectively 20 steps in order to achieve a notification of money grant for a special construction project. On the way through this procedure for FAIR civil construction the first 6 steps will be achieved up to the end of December 2007. Steps 7 to 10 then lead to a first grant notification which is expected in the beginning of the year 2009.

Since July 2007 the achievements in the "Z-Bau"-procedure comprise the following:

- An informal enquiry, followed by a preliminary consensus and coordinating discussions (step 1 - 3)

- The commissioning of the supreme authority (step 4)

  The German BMBF (Federal Ministry of Education and Research) assigned the German "BMVBS" (Federal Ministry of Transport, Construction and Urban Development) which has to take over the responsibility as specialist supervisor for civil construction.

- Stipulation of the maximum requirements of expanse (German: Bedarfsobergrenze) for all buildings of the FAIR facility (step 5)

  The maximum requirements have been thoroughly evaluated and submitted for the whole FAIR project.

- Acquisition of freelancers (step 6)

  Acquiring freelancers need a lot of legal framework in order to comply with all regulations and to act in the sense that no formal mistakes derail the procedure.

  One important decision has already been made. It is that of the project steerer, represented by the firm of Drees & Sommer, Frankfurt. They will constitute the mediator between the constructor and the planning firms and they will do the controlling of deadlines and costs.

  Last but not least Europe-wide invitations to tender will be launched in December 2007. They will cover about 10 major fields, among others e. g. the structural design, civil and underground engineering, high-power current, weak current installations, building services and surveying. Results are expected in May 2008.
Beam Cooling is a key technique in the planned FAIR accelerator complex. Therefore it was an obvious decision for GSI to host from September 10 to 14 this year's workshop on beam cooling and related topics, 'COOL 07'. The workshop is organized as a biennial event and this time it brought together about 65 experts from all over the world. An international program committee supported the local organizers in the arrangement of a program which covered all major activities in the field of beam cooling. The infrastructure was prepared by the local organizers from the accelerator and FAIR-TS division, supported by the GSI-IT division for technical installations. The choice of the 'Park-Hotel Bad Kreuznach' turned out to be very favourable: Located next to the resort park and the city the hotel provided comfortable meeting rooms and created a relaxed atmosphere during and after the sessions.

The workshop was structured in 10 sessions with 3 oral presentations each, two in the morning and two in the afternoon. One afternoon was reserved for a poster session and another for an excursion which took the participants to the Rhine valley, culminating in the conference dinner in the Eberbach Monastery. The presentations were supplemented by a presentation of Fritz Bosch from the GSI atomic physics division. He illustrated how stochastic and electron cooling work together to provide very cold ion beams even allowing experiments with single stored ions.

The main body of the workshop was focused on the traditional cooling techniques. Stochastic cooling is employed in the cooling and accumulation of high quality and high intensity secondary beams. Bunched beam stochastic cooling was recently developed at BNL and resulted in a luminosity increase for collision experiments in RHIC. Since the last workshop 'COOL 05' three new installations have been commissioned, using low energy electron cooling: LEIR at CERN, the CSRm at the IMP Lanzhou, China and the S-LSR at Kyoto University. At higher energy the story of success of the Recycler electron cooling system at FNAL continues. In combination with the established stochastic pre-cooling and accumulation systems electron cooling of 8 GeV antiprotons in the Recycler resulted in new luminosity records for proton-antiproton collisions in the Tevatron; this with a peak luminosity increase by more than a factor of two in the last two years.

The high potential of electron cooling in the preparation of extremely cold ion beams was discussed in contributions on experimental and theoretical work on crystalline beams and their future use. Laser cooling is another cooling technique which is investigated particularly towards lowest beam temperatures.

The planned cooling techniques for FAIR, stochastic pre-cooling of secondary beams, accumulation of secondary beams assisted by stochastic or electron cooling, electron cooling of antiprotons at very low (FLAIR) and relativistic (HESR) energies and electron cooling of rare isotopes to highest beam quality are well justified by the experience with existing cooling devices.
The prospects of advanced cooling techniques were covered in sessions on muon cooling, coherent electron cooling and in an overview of the development of an electron cooling system for RHIC. An ionization cooling scheme will be indispensable for a future muon collider. The coherent excitation of electrons in a scheme similar to traditional stochastic cooling is considered to achieve high cooling rates at relativistic energies. The RHIC electron cooling system is developed as an energy recovery linac, following ideas for free electron laser systems.

The workshop was a balanced overview of the well-established cooling techniques and advanced concepts which still need experimental demonstration. Most subjects were dealt with in intense and lively discussions, often continuing into the breaks and in formal after-session meetings. The contributions are published with the JACOW collaboration which is a well established platform for accelerator conferences and related workshops and which will publish this workshop for the first time.

The next workshop in the series will be organized by the IMP Lanzhou in China in autumn 2009.
**FAIR Links**

FAIR in the Internet:
http://www.fair-center.org

FAIR calendar:
http://www.gsi.de/gsитools/fair_e.shtml

How to reach the location:
http://www.gsi.de/informationen/users/index_e.html

First steps at GSI

FAIR in 'CERN Courier':

FAIR in 'Nuclear Physics News':

FAIR Memorandum of Understanding
http://www-win.gsi.de/FAIR-Newsletter/Documents/MoU_FAIR_Signatories_260207.pdf

FAIR Baseline Technical Report:
http://www.fair-center.com/reports/btr.html

FAIR Communiqué
Masthead

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