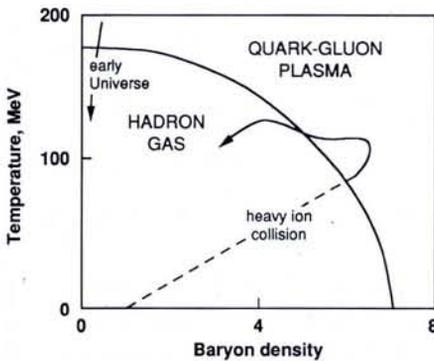


## ● Russian Statement on Nuclear Physicists

S. Kapitza and V. Mikhailin, Presidents of physical societies in Russia, and N. Ponomarev-Stepnoy, President of the Russian Nuclear Society, issued a statement in March in response to media reports that nuclear physicists from the former Soviet Union have received offers to work on weapons programmes elsewhere. The statement says "there are no reasons to question the personal and professional integrity and responsibility of our colleagues, than that of specialists from USA, UK, France and China". To the charge that the region's more serious economic problems encourage physicists to enter these programmes, the statement notes that the "status and support for scientists ... causes concern" which is quite clearly "shared by the Russian Government, that has made a number of steps to resolve .... problems connected with the conversion of the nuclear industrial complex".



Schematic phase diagram for nuclear matter: temperature versus the baryon density normalised with respect to nuclear density.

## ● Heavy Ion Physics

Heavy ion collisions at relativistic energies aim to achieve a hot central region in which the density of nucleons is so high that according to QCD theory, the quarks within the nucleons can no longer be associated with individual nucleons. Colour charge in this new form of matter, called a quark-gluon plasma, is allowed to move freely except for interactions between individual partons. The high density state expands and a phase transition to a state of confined colour and broken chiral symmetry will occur at some stage. The particles continue to interact among themselves until the density drops to a level at which they depart to be recorded by detectors.

The confining nature of the strong interaction only allows hadronic final states so a detailed understanding of all hadronic decay processes is necessary before the plasma can be identified. Increasing the size and energy of the colliding ions will allow a better understanding and hopefully identification of a clear signal for the hadron to quark-

gluon plasma phase transition (there is no unambiguous evidence at present). Hence the importance of the announcement that the recently upgraded Alternating Gradient Synchrotron (AGS) at the Brookhaven National Lab in the US produced its first Au beams late last month. AGS has operated up to now with smaller Si and O ions at 14.6 GeV/c/u (14.6 GeV per nucleon in the centre of mass) in the fixed-target mode. The announcement came shortly after CERN completed its last S-S fixed-target experiments at the SPS synchrotron at 200 GeV/c/u prior to upgrading to Pb-Pb at 160 GeV/c/u by late-1994.

Work at AGS and SPS will be overshadowed when BNL's Relativistic Heavy Ion Collider (RHIC) for hydrogen through to Au becomes operational in the second half of 1997. RHIC's maximum collider energy is 200 GeV/u for Au-Au collisions, being many times the 2.5 and 20 GeV/u equivalents for AGS and SPS, respectively. But there will be a new feature. Collider collisions give a high density in the baryon-poor region similar to that found in the early Universe as opposed to the baryon-rich region obtained at AGS and SPS. European physicists meanwhile pin their hopes on a possible 6.3 TeV/c/u Pb-Pb collider programme at CERN's proposed LHC collider. CERN Council decided last December that heavy ion physics should initially take 10% of LHC machine time.

## ● US High Energy Physics Programme

A US Department of Energy panel has approved a report of a sub-panel chaired by M. Witherall recommending that the current construction schedule for the SSC collider in Texas be maintained for the next five years. In considering the high energy physics "base" programme, the balance between research at universities and national laboratories, and the transition to an operational SSC, the sub-panel also recommended that if HEP funding is not adjusted for inflation, then SLAC should not start construction of a B-factory before 1998 and should terminate its linear collider programme. For an inflation adjusted scenario, the sub-panel recommended an end to Brookhaven's HEP programme when RHIC starts operations. Hence, unless funding is boosted in real terms, the construction of SSC on schedule could mean accelerator operations cease at up two national labs.

BirZeit University's new campus.



The Magnet Development Laboratory, the first building to be constructed on the SSC site in Texas.

A ministerial-level Joint Working Group established at President Bush's summit meeting in Tokyo in January is to recommend how the SSC project can be set up as an international programme to permit Japan to participate. The Group met for the first time on 9-10 April. Meanwhile, the SSC Lab has awarded a 14.4 M\$US general construction contract for a 4.4 km segment of the 87 km long, 16 m in diameter SSC tunnel. A contract for an additional 13.5 km segment is expected this summer.

## ● All Occupied Territories Universities Now Open

With the partial opening on 29 April of BirZeit University near Ramallah (after a four-year closure by military authorities), physics departments in all of the Israeli occupied territories' five universities are now functioning normally. The BirZeit department had been using makeshift accommodation while a superb science and engineering faculty on a new campus built with foreign aid was unavailable.

F. James, the Chairman of the *Euromphysics News* Editorial Board, reports that physics in the territories continues under hardship conditions. But in spite of precarious finances, the universities are expanding and remain surprisingly dynamic. The number of students totals about 14 000 (some 200-300 in physics) and is growing. The European Community has set up initiatives to help, and 200 KECU is being provided this year for student grants and staff exchange by a programme called PEACE agreed to last year by EC universities (for information, contact Prof. V. Grentieri, COIMBRA Group Office, 13 avenue de l'Assomption, B-1220 Brussels; fax: +32-2-764 22 99). Establishing computer network links will be straightforward if Israeli authorities agree.

## ● ESA Spacecraft

The European Space Agency reports that cuts in NASA's 1992 budget [EN 23 (1992) 60] mean that the **Cassini** Saturn Orbiter/Huygens Titan Probe mission is now scheduled for a November 1996 launch, some six months later than planned. The **Ulysses** spacecraft [EN 22 (1991) 203] passed through the Jovian magnetosphere in February and data were successfully taken by all nine on-board experiments. Ulysses is now heading for its passage over the Sun's south pole in two years time. NASA aims to launch the ESA multipurpose reusable space platform **Eureca** by Space Shuttle on 2 July. The **Giotto** satellite that passed within 596 km of the comet Halley in 1986 is due to be reactivated as we go to press, ready to approach within about 1000 km of another comet, Grigg-Skjellerup on 10 July.

## ● ESRF Stores First Beam

In a remarkable performance, the European Synchrotron Radiation Source under construction in Grenoble, France, stored its first beam in the 6 GeV storage ring on 28 February, some six months ahead of schedule after only one attempt a week earlier. Commissioning continues until the end of 1992. Tenders for ESRF-funded beamlines 21 to 24 are now invited.

## ● Special 40 MECU EC Initiative for C&EE

F.-M. Pandolfi, Vice-President of the European Community and the EC Commissioner responsible for science and technology pledged last year to hold information meetings that would cover all the "Opportunities for Collaborative Research" between central and eastern Europe (C&EE) and the EC. A first meeting on 5/6 May in Budapest for five countries covered a special 1992 DG-XII/XIII action of 40 MECU (launched by coincidence at the same time) as well as the five programmes of the third EC Framework programme which are open to C&EE (environment, biomedicine and health, non-nuclear energy, nuclear fission safety, and human capital and mobility). Research institutes identified in a recent EC survey were invited, the heaviest registrations being from Poland and Czechoslovakia. Four types of actions are envisaged, namely mobility (scientist and student transfer and academic staff exchange — "Go East/Go West"; 15 MECU); networks, conferences and seminars (5 MECU); joint research projects (20 MECU); participation in five EC R. & D. programmes (10 MECU) and in COST projects (5 MECU). Proposals forms: from national EC contact persons or from S. & T. Cooperation with C&EE, DG-XII, CEC, 200, rue de la Loi, B-1049 Brussels (Tel./Fax: +32-2-235 59 36 / 236 33 06). Deadline for proposals: **19 June 1992**.

## ● EC Human Capital and Mobility Programme Call

A call for proposals (deadline: end-June 1992) for the EC Human Capital and Mobility programme was expected as you receive this issue. However, the programme's ma-

agement committee made up of member state representatives has yet again failed to agree on sensitive details (e.g., direct-application bursaries) of the Commission's proposed work plan (and thus the text of the call for proposals). There is now a strong possibility that the programme will be referred back to Council which has 3 months to reach a majority decision on a work plan, otherwise the present plan becomes effec-

tive. In either case there would be a further minimum delay of 3 months, bringing the total to some 18 months. EC officials hope a deal can be struck outside formal meetings to avoid referral and allow the call to proceed. The general direction of the programme has been widely published and details are available from C. White, CEC, DG-XII, 200, rue de la Loi, B-1049 Brussels (Tel./Fax: +32-2-235 53 69 / 235 88 65).

## EQUIPMENT OFFER Helium Refrigerator

The Physics Department of Delft Technical University, The Netherlands, wishes to donate a second-hand  $^3\text{He}/^4\text{He}$  refrigerator to a university physics department in central or eastern Europe familiar with this type of equipment and having available liquid He and  $\text{N}_2$ . Built by Dr. Staas in collaboration with Philips, the machine can reach 50 mK and can be transformed into a  $^3\text{He}$  evaporation cryostat. Vacuum pumps and some electronic controls are included.

For further information, please contact:  
Professor Hans Postma, Physics Dept,  
TU Delft, POB 513, NL-5600 MB  
(Fax: +31-13-78 32 51)

## Neutron Scattering from Liquids

EPS LIQUID STATE CONFERENCE

15 - 18 September 1992  
Giardini Naxos, Sicily, Italy

Abstracts: 1 June 1992  
Final registration: 15 July 1992  
Contact: J. Teixeira, Lab. Léon Brillouin,  
CEN Saclay,  
F-91191 Gif-sur-Yvette Cédex  
(Fax: +33-1-69 08 82 61).

## Professorship in Theoretical Physics

is vacant at the **Department of Physics, University of Oslo** in Norway. The main activity in the theory group is now elementary particle physics and quantum field theories for condensed matter phenomena. In addition, there is theoretical research in the nuclear physics and solid state groups.

Applicants should have a strong background in theoretical physics. We hope to hire a person with special competence within modern quantum field theory.

Applications should include a *curriculum vitae* with a list of publications and be sent to

Det akademiske kollegium  
Universitetet i Oslo  
Universitetsdirektøren  
P.O. Box 1071 Blindern  
N-0316 Oslo, Norway.

before **June 13, 1992**.

Further information about the position can be obtained from:

Professor F. Ravndal, Department of Physics,  
University of Oslo, P.O. Box 1048, N-0316 Oslo, Norway

or by tel.: +47-2-855 094, fax: +47-2-856 422; e-mail: finnrf@fys.uio.no.



## Mathematica™

A System for Doing Mathematics by Computer

A Wolfram Research Inc. product

**Numerics** - Works with numbers of arbitrary magnitude and precision.

**Symbolics** - Encyclopaedia of mathematical functions and operations used in arithmetic, algebra and analysis.

Procedural, functional and mathematical programming.

**Graphics** - 2D, 3D and animated PostScript graphics.

**Text processing** - Fully interactive reports and textbooks.

**Runs on** - MS-DOS based computers; Macintosh, Apollo, Hewlett Packard, IBM AIX/RT, MIPS, Silicon Graphics, Sony, Sun, VAX.

Now available in Europe from:

**MathSoft Overseas, Inc.**

POB 641, 1211 Geneva 3, Switzerland  
Tel. ++41 (22) 46 52 60  
Fax ++41 (22) 46 59 39