- europhysics notes -

• Greater Independence for UK Labs

Daresbury, Rutherford-Appleton and the Chilbolton Observatory now operate under a new logo.

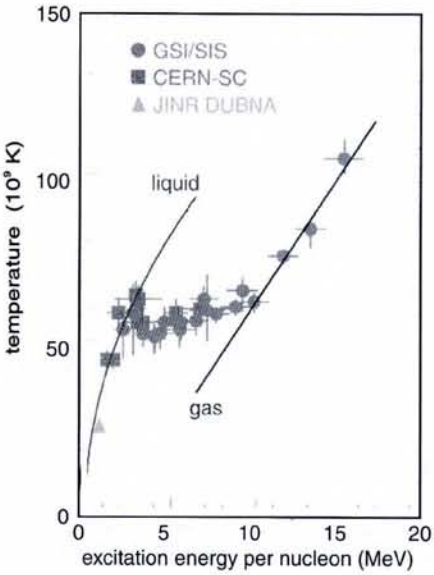
CLRC

The Rutherford and Daresbury Laboratories were set up in 1957 and 1962, respectively, as part of the National Institute for Research in Nuclear Science to provide the UK's principle means for pursuing academic work in nuclear science. Their managements, together with those of several smaller institutions including the Royal Observatories at Greenwich and Edinburgh, were taken over in 1965 by the newly created Science Research Council (which became the Science and Engineering Research Council). Since 1970, with increasing international collaboration, resources were progressively redeployed away from nuclear science. The Appleton Laboratory specialising in ionospheric research merged with the Rutherford in 1979, some four years after the Atlas Centre (formerly the Atlas Computing Laboratory).

With the reorganization of the Research Councils in the early 1990's it was soon appreciated that Daresbury and the Rutherford-Appleton would be supporting major programmes funded by five Councils. So they were merged under a single Director in 1994, and managed within the new Engineering and Physical Sciences Council until the Minister of Science decided in October 1994 to establish a new Council for the Central Laboratory (CCL) of the Research Councils (CLRC).

The CCL, which came into existence on 1 April 1995, employs 1930 and has a budget of 91 M£ (80% comes from the other Research Councils). It represents "the largest concentration of world-class facilities and expertise in the physical and engineering sciences to be found in the UK public sector outside defence". Paul Williams, the CCL Chief Executive, says at the CLRC "looks forward to satisfying an even broader range of users and customers given its new level of independence". The CCL's first corporate plan is due in October. Meanwhile, it will mainly support Research Council-funded programmes and play a role in enhancing the quality of life and in wealth creation, essentially by promoting technology transfer through units for "research services" (in 1994, the two labs had contracts or agreements with over 100 companies). In addition to industrial "clubs" and an Associates Scheme, facilities are being upgraded (*e.g.*, the 13-year old Sprite laser — the world's brightest UV laser — will be called Titania after its power has been increased ten-fold by next year).

Meanwhile, the Board of the Particle Physics and Astronomy Research Council, in asking for more information, has delayed its decision until September on whether to merge the two Royal Observatories.



Heavy-ion physics at GSI Darmstadt. *Germany's Minister for Research and Technology visited GSI, Darmstadt, essentially unannounced in March 1994 and in early 1995 for its 25th anniversary and following a series of important, even spectacular, new results involving heavy ions. They include the production of the elusive doubly magic ^{100}Sn nucleus, the discovery of two new heavy elements (Z = 110 and 111) which pave the way to heavier elements up to at least Z = 114, and the first convincing evidence for a liquid-gas transition in hot nuclear matter. The 20-year search for the transition, shown in the figure plotting the temperature of the system produced in relativistic heavy-ion collisions as a function of the total excitation energy per nucleon, was stimulated by the van der Waals behaviour of the nucleon-nucleon force. Future systematic results will be of general significance for clusters and others systems of finite-size.*

• Heavy-Ion ignition Study Underway

Inertial confinement fusion (ICF) with heavy-ion beams is promising for energy generation [Bock R., *Proc. 5th EPS Conf. on Large Facilities in Physics*, Lausanne, 1994; Eds.: M. Jacob & H. Schopper (World Scientific, 1995); *GSI Preprint* **95-15** (1995)]. Goals and concepts for future European research in the field have been explored in a series of studies. The outcome for the next logical step was a proposal to combine existing ICF activities with a feasibility study for an ignition facility. R. Bock from the GSI Darmstadt reports that a proposal for a study group [Atzeni S. *et al., A Heavy Ion Ignition Facility: Proposal for a Study Group*; September 1994: *GSI-Report* **95-03** (1995)] involving about 30 scientists for 3 years was submitted to the European Union (EU) by four European research centres (ENEA Frascati, DENIM Madrid, FZ Karlsruhe, and GSI Darmstadt), with other institutions (*e.g.*, CERN) and several university institutes involved on a collaborative basis. EU funding was agreed in April.

The study will be concerned with critical design issues for the heavy-ion driver, the targets and their production, and the reaction chamber. The main task involves a feasibility report that includes a preliminary design for an ignition facility. According to present knowledge, ignition requires a pulse energy of 1-2 MJ delivered onto a target of a few mm

in diameter within 6-7 ns, the specific deposition power being of the order of 10^3 TW/g (today's state-of-the-art is a factor of about two lower). A CERN workshop some 18 months ago concluded that a MJ-driver can be realized with a 6 GeV linac combined with a few storage rings for beam accumulation.

The goals and the issues to be investigated were discussed at an inauguration meeting at GSI Darmstadt on 28-29 March. Research on accelerators will be based at GSI (supported by on-going research at CERN and at Frankfurt University), on targets at the ENEA Frascati and in Madrid, and on the reaction chamber at Karlsruhe and Madrid; Günther Plass has agreed to serve as the Group's project leader.

• TMR in Steady State ... Mostly

Networks: The deadline for the first round of the Networks activity in the EU's Training and Mobility of Researchers (TMR) programme closed in early June. There were about 1500 applications (in line with European Commission expectations) of which some 100 can expect to share the 1995 budget allocation of 150 MECU. Physics historically made up 25% of the applications, but this rate may turn out to be lower since applications in the social sciences may have increased relative to their historical level of about 10%. Disciplinary review panels make recommendations in September-October and successful applications are officially announced on 4 December. Future calls for proposals are annual (close in June 1996 and June 1997).

Large-scale facilities: The review panel met in May and June and made recommendations for the first round (72 MECU) to be announced on 31 July. The number of proposals (≈ 200) was as expected. The next, and last, round (for 35 MECU) is in 1997.

Fellowships: The first round resulted in 2800 applications for individual fellowships of which some 300 have been eliminated for eligibility reasons. The EC planned for 3000 applications because there had not been a call for one year and because the number of applications at each successive round tended to increase (the last call in Human Capital and Mobility — the TMR predecessor — netted 1800 applications). There is some 39 MECU to distribute, corresponding to 400-450 fellowships. It seems that there has not been a large increase in the number of applications in specific fields such as social science so the percentage for physics has stayed at the historical level of about 25%. Disciplinary evaluation panels begin to meet in July and successful applicants can expect to start receiving letters of notification from the EC in August (final notification is subject to an official EU decision which rarely affects the outcome); the EC will then send contracts to the institutes concerned. The next calls are on 15 September and 15 December, and there are two calls *p.a.* in 1996 and 1997.

Euroconferences: The first round, which closed in mid-April, netted some 230 acceptable proposals. This was slightly fewer than expected, probably because guidelines are clearer (*e.g.*, to encourage small conferences) and because demand cannot build up indefinitely. As it is relatively easy to make a well-defined proposal for a school, some 40% of proposals are for schools — a satisfying outcome of the new policy to fund this type of event. Physics maintains its historically large share (≈ 30%) of proposals and

there is concern that some applied areas are under-represented. The review panel meets in July, with official decisions expected in September-October and the first contracts in December. Procedures for applying for support for participants from east and cental Europe are not yet implemented, but they should emerge in time to be incorporated into contracts for 1996 events. The next call closes on 31 September and there are two calls *p.a.* in 1996 and 1997.

• R&D Growth Means More Organization

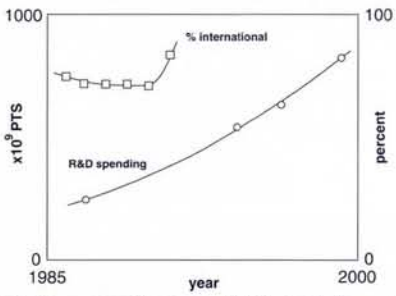
Bibliometric data published in *Politica Cientifica* (see figure) shows that Spain's research output in astronomy and astrophysics as measured by the number of scientific articles published within an international as opposed to national collaboration has increased sharply since 1988. This stems from an increasing assimilation into so-called "big science". The trend has resulted in the creation of an advisory committee for large facilities to advise the Interministerial Committée on Science and Technology (CICYT in Spanish).

Spain's expenditure on R&D more than doubled in terms of GDP between 1982 and 1992 (but remains less than half of the EU average). The country's total scientific output measured in terms of the number of articles published also doubled in the same period. This growth is calling for better overall organization and coordination, so the *3rd National R&D Plan for 1996-99* submitted by the Minister for Education and Science last month has proposed a new horizontal programme to structure R&D.

The 3rd Plan envisages increasing total industrial and state expenditures on R&D by about 10% *p.a.* Nine national programmes continue (biotechnology, health, food technology, agriculture, production technology, Antarctica, space, materials, information technology) with the six new ones (climate, water resources, marine science & technology, telematics, recycling) reflecting a switch from "technology push" to "demand pull".

• CEBAF Reaches Design Energy

The 515 M$US Continuous Electron Beam Accelerator Facility (CEBAF) under construction in Newport News, VA, USA, since 1987, reached its design energy of 4 GeV on 9 May using the full five circuits of the accelerator. The facility, designed to explore the structure of the nucleon and its resonances, has been built on schedule and on budget (the budget was "rebaselined" according to new accounting procedures in 1991). Europe, meanwhile, envisages a high energy (15-30 GeV) machine with a similar duty factor for a future Electron Laboratory For Europe (ELFE).



Spain's expenditure on R&D and the percentage of articles in astronomy and astrophysics published in the context of an international collaboration. Taken from Politica Cientifica *(1995) No. 42 & 43.*

European Register Launched

The designation *European Physicist* (abbreviated as *Eur Phys*) represents a new qualification for physicists. It is obtained by being admitted to the *European Register of Physicists* which has been set up recently by the EPS, together with the necessary procedures for handling applications for entry.

Many national physical societies were asked last month to inform their members that applications to the *Register* are now sought. Copies of an *Application Form, Guidance Notes*, a *brochure* describing the qualification, and an *information sheet* were sent to the societies. If difficulties are encountered obtaining copies from a national society, they can be requested from:
EPS Geneva Secretariat
POB 69, CH-1213 Petit-Lancy 2
Tel. +41-22-793 11 30; Fax +41-22-793 13 17
E-mail: epnews@cernvm.cern.ch

Admission

Admission to the *Register* requires:

- At least three years' acceptable education in physics, or in a physics-related discipline, at the university level.
- At least two years' post-graduation experience in a responsible position involving physics or a related discipline (this experience may include a training period).
- At least two years university education and/or appropriate post-graduation experience.

A completed *Application Form* should be sent, together with the non-refundable application fee of 50.– Swiss francs to an address indicated in the *Guidance Notes*.

A *European Regional Monitoring Committee* then evaluates the application, assisted by independent experts. Its summary and recommendation are considered by the *Register Commission* to ensure uniform, high standards. Successful applicants receive a certificate after paying a 250.– Swiss francs registration fee for an initial five-year registration period. Registration is renewable without the need to submit a new application (although it might be necessary to update the first application).

Further Information

Further information is available from many national physical societies, from the EPS and on WWW *via* EurophysNet at http://**epswww.epfl.ch/**

Thermal Microsensors

The report of the Europhysics Industrial Workshop *Thermal Microsensors* [*Europhys. News* **25** (1994) 208-9] omitted to mention that the the organizers of the workshop gratefully acknowledge support from the European Commission's DG-XII.