

Avantages mutuels

A Delhi, le 29 mars, le Directeur général du CERN Chris Llewellyn Smith (à droite) et R. Chidambaram, président de la commission de l'énergie atomique indienne et ministre de l'énergie atomique, signent leurs copies du protocole d'accord de coopération de 1991 entre le Ministère de l'énergie atomique du gouvernement indien et le CERN. Ce protocole concerne la participation de l'Inde au projet de collisionneur de protons LHC du CERN et prévoit une contribution à sa construction d'un montant équivalant pour le CERN à 12,5 M\$.

Le collisionneur de protons LHC du CERN sera le fer de lance de la physique des particules mondiale à l'orée du siècle prochain. Le calendrier actuel prévoit que l'expérimentation y débutera en 2004; au LHC la collaboration scientifique internationale atteindra une dimension nouvelle. Outre les chercheurs et ingénieurs des 19 Etats membres européens du CERN, le programme attire des scientifiques du monde entier. En fait les représentants des Etats non-membres constituent près de la moitié de tous les scientifiques qui préparent les expériences de physique. Parmi eux la communauté venue des Etats-Unis est très en vue, ce pays est en fait le premier utilisateur du LHC pour la physique.

On considère que cet important concours des Etats-Unis sera particulièrement bénéfique pour le programme d'expérimentation. En outre, leurs physiciens des accélérateurs désirent vivement utiliser leurs connaissances et leurs compétences dans des travaux relatifs à la machine LHC et une contribution des Etats-Unis au collisionneur — ajoutée à celles d'autres Etats non-membres — pourrait rapprocher le jour qui verra le nouvel accélérateur atteindre sa pleine énergie.

La collaboration transatlantique est perçue par le CERN et les autorités américaines finançant ce type de recherche — le Ministère de l'énergie et la National Science Foundation — comme mutuellement avantageuse pour les universités d'Europe et des Etats-Unis. En effet, si la participation des Etats-Unis au programme du LHC est importante, les physiciens européens quant à eux ont traditionnellement pris part en grand nombre aux recherches des grands laboratoires des Etats-Unis, bien que le bilan des échanges transatlantiques se soit inversé pendant la préparation des expériences LEP pour faire place maintenant à un excédent du courant dirigé vers l'Est.

Le LHC, cependant, est à la limite des moyens financiers de l'Europe. Les promesses de contributions des Etats membres du CERN ne permettraient de le construire qu'en deux étapes, en passant par celle de l' "aimant manquant". Dans ces circonstances le

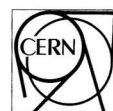


CERN a considéré qu'il était équitable de demander aux Etats non-membres comptant de nombreux physiciens parmi les signataires des propositions d'expériences au LHC d'apporter leurs contributions afin d'accélérer le projet pour le bénéfice de tous les utilisateurs. En elle-même la décision des Etats non-membres de contribuer à la construction du LHC constituera un progrès important vers une collaboration mondiale en physique des particules.

L'an dernier le gouvernement japonais a généreusement apporté 5 milliards de yens (environ 50 millions de dollars) pour aider au financement de la construction du LHC, et des accords avec Israël et l'Inde (voir photo) couvrent leurs contributions sur l'ensemble de la période de construction. La signature d'accords avec le Canada et la Russie devrait également intervenir rapidement.

Déjà en 1994, le comité "Future Vision" des Etats-Unis présidé par Sidney Drell avait recommandé que le pays contribue à la machine aussi bien qu'aux expériences. Les négociations Etats-Unis-CERN convergent maintenant vers un accord-cadre prévoyant des accords séparés pour l'accélérateur LHC, les détecteurs et les dispositions légales qui s'y rapportent; trois groupes de travail distincts ont été mis sur pied. Des équipes des Etats-Unis se trouvent au CERN pour réunir les

renseignements nécessaires en vue de formuler une demande de financement officielle. Le CERN considère que le niveau précis de l'engagement des Etats-Unis sera crucial dans les décisions clés à prendre cette année vis-à-vis des détecteurs LHC et constituera un élément important dans la décision du Conseil du CERN qui en 1997 établira le rythme du calendrier de construction du LHC. Alors que les négociations se poursuivent, de premiers indices indiqueraient que la contribution à la construction de la machine LHC coûterait environ 225 millions de dollars au Ministère de l'énergie des Etats-Unis, tandis qu'une somme similaire serait consacrée au financement des deux grands détecteurs LHC — ATLAS et CMS. La National Science Foundation des Etats-Unis apportera également sa quote-part aux détecteurs. On établit actuellement une liste des contributions possibles à l'accélérateur, l'objectif consiste à rechercher un compromis optimisant le bénéfice pour le CERN tout en permettant aux laboratoires des Etats-Unis qui prendront la responsabilité de la conception et de la fabrication de certains éléments d'entretenir et d'améliorer leurs compétences technologiques. Après l'accord du Ministère de l'énergie et l'acceptation du Conseil du CERN, les contributions des Etats-Unis devront finalement être approuvées par le Congrès.



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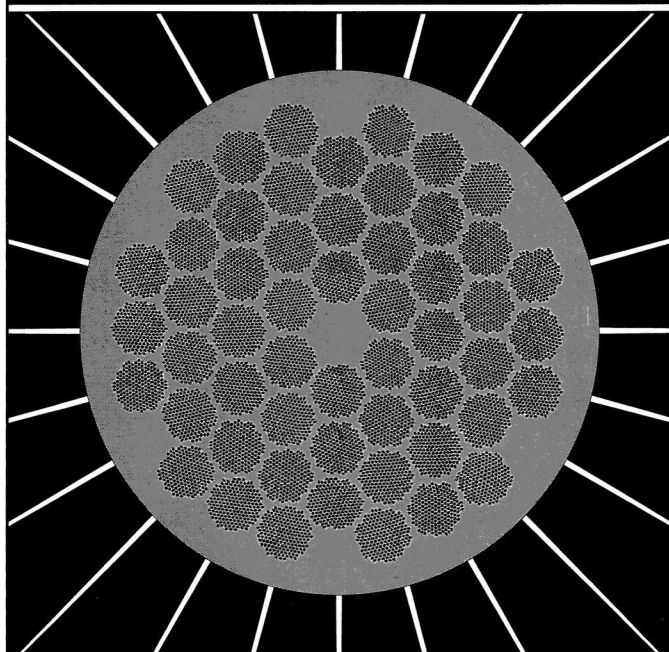
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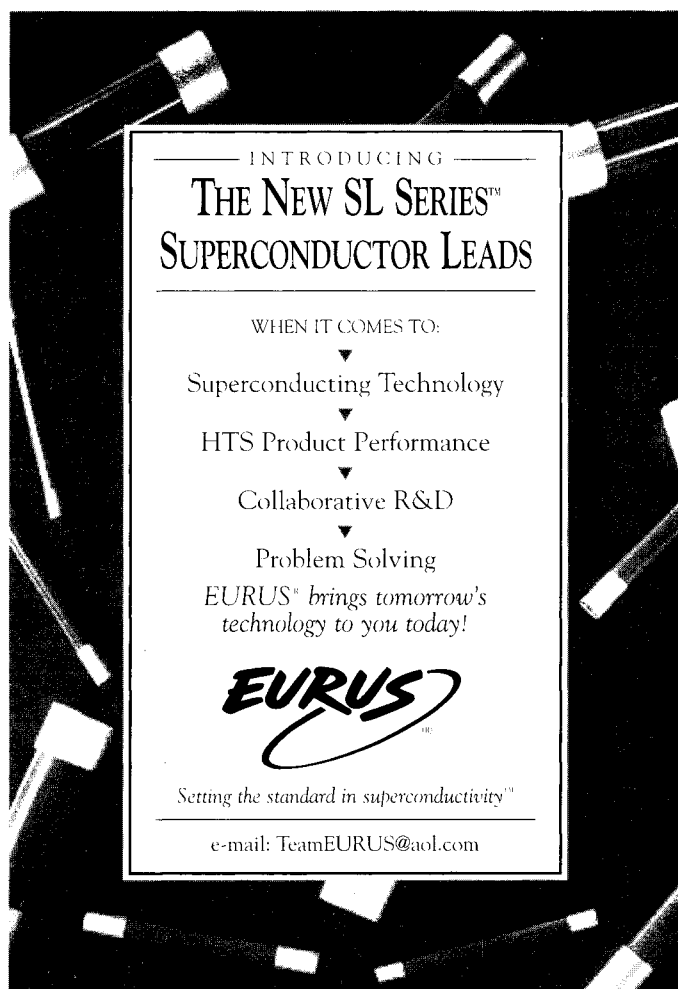
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The candidate should have experience with complex DAQ systems in high energy experiments.

The understanding of current technologies and the ability to play a leading role in the research and development of future systems are required.

Applications with CV, should be addressed to:

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Postdoc Positions at HERMES

The Netherlands National Institute for Nuclear Physics and High-Energy Physics (NIKHEF) is searching well-qualified postdocs for experimental work in hadronic physics. The research work will be carried out at HERMES, the new polarized internal target set-up at DESY (Hamburg). The experimental programme of HERMES is aimed at measurements of the spin and flavour distributions of quarks inside the nucleon.

A successful candidate will participate in the on-going (semi-inclusive) deep-inelastic electron scattering experiments. Special attention should be given to the development and operation of the Vertex Chambers (a large array of Micro-Strip Gas Chambers), for which NIKHEF is responsible.

A significant amount of time should also be spent on the data analysis, where the emphasis will be on the semi-inclusive data taken on various target nuclei. As an example of the type of results that could be obtained, we mention the envisioned studies of quark-propagation effects. By detecting leading hadrons on various target nuclei the attenuation ratio can be measured over a large kinematic range (in Q^2 and η). From such measurements quantitative information on the FORMATION TIME of hadrons can be obtained. Up till now no such data exist.

For the second candidate the work will be aimed at the development and possibly construction of new detectors supplementing the existing HERMES set-up. Recoil detectors in the backward hemisphere, for instance, could be used to tag deep-inelastic scattering events off neutrons. Extensive simulations have to be performed, in collaboration with other (European) groups active in this field.

A two-year contract will be offered. One of the two positions will be in the framework of the recently approved EC-TMR network on the subject of 'Hadronic Physics with High Energy Electromagnetic Probes'. For the TMR position only European nationals are eligible. Further information can be obtained from Dr. G. van der Steenhoven (e-mail: gerard@nikhef.nl, telephone +31-205922145, fax +31-205922165). Applications should be addressed to the NIKHEF personnel department, to the attention of T. van Egdom, NIKHEF, P.O. Box 41882, 1009 DB Amsterdam, The Netherlands (e-mail: pz@nikhef.nl, telephone: +31 - 205925077, fax +31 - 205925170).



Le support publicitaire pour équipements scientifiques et techniques

Le COURRIER CERN (CC) est la revue internationale traitant de l'actualité dans le domaine de la physique des hautes énergies. Distribuée aux spécialistes de tous les grands laboratoires du monde, actifs dans cette branche dynamique de la recherche fondamentale, le CC constitue la vraie source d'informations pour les chercheurs, ingénieurs, administrateurs, etc... Rédigé dans une langue simple et publié simultanément en français et en anglais, le CC est peu à peu devenu le moyen de communication entre les physiciens des particules élémentaires de l'Europe, des Etats-Unis, de la CEI, du Japon, de la République populaire de Chine et d'ailleurs.

Publié au CERN Suisse, il bénéficie de la collaboration de correspondants dans les laboratoires d'Argonne, Berkeley, Brookhaven, Cornell, Fermi, Los Alamos et Stanford (USA), d'Orsay et Saclay (France), de DESY et Karlsruhe (RFA), de Frascati (Italie), de Rutherford (Royaume-Uni), du PSI (Suisse), de Doubna, Novosibirsk et Serpoukhov (CEI), du KEK (Japon), de TRIUMF (Canada) et de Beijing (Chine).

Les crédits pour la physique des hautes énergies atteignent, en Europe, environ 1,8 milliard de francs suisses. Aux Etats-Unis, ils se montent à quelque 1,1 milliard de dollars.

Une annonce dans le COURRIER CERN est diffusée systématiquement parmi la plupart des spécialistes des grands laboratoires de recherche en physique des hautes énergies.

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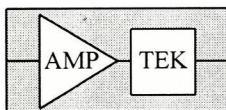
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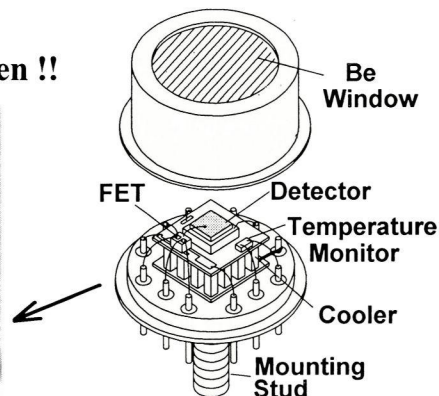
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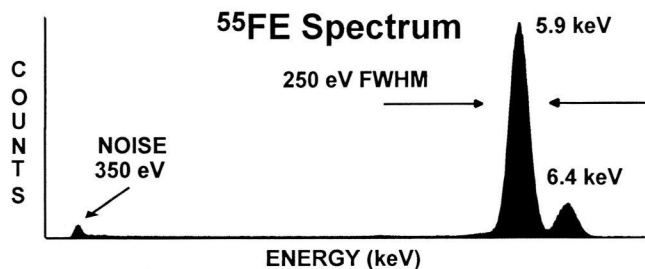
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Tanguy Altherr was a Fellow in the Theory Division at CERN, on leave from LAPP (CNRS) Annecy. At the time of his accidental death in July 1994, he was only 31.

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