Symposium in Honour of Francis TASSET

Institut Laue Langevin - March 6, 2009

Merci Francis

Pendant près de 15 ans, j'ai eu le privilège de travailler en grande complicité avec toi, Francis, l'un des plus grands Hommes que j'ai eu l'occasion de rencontrer.

Passionné, tu as bouleversé les idées reçues et fait progressé toute une communauté scientifique malgré beaucoup d'embûches.

Je suis souvent troublé à l'idée qu'une partie de ma propre vie est fondée sur ton travail et j'ai conscience d'avoir une grande dette envers toi. C'est avec beaucoup d'émotion et de sincérité que j'ai organisé ce symposium que tu mérites tant.

The symposium was organised by the Institut Laue Langevin to honor Dr. Francis TASSET who retired in July 2007.

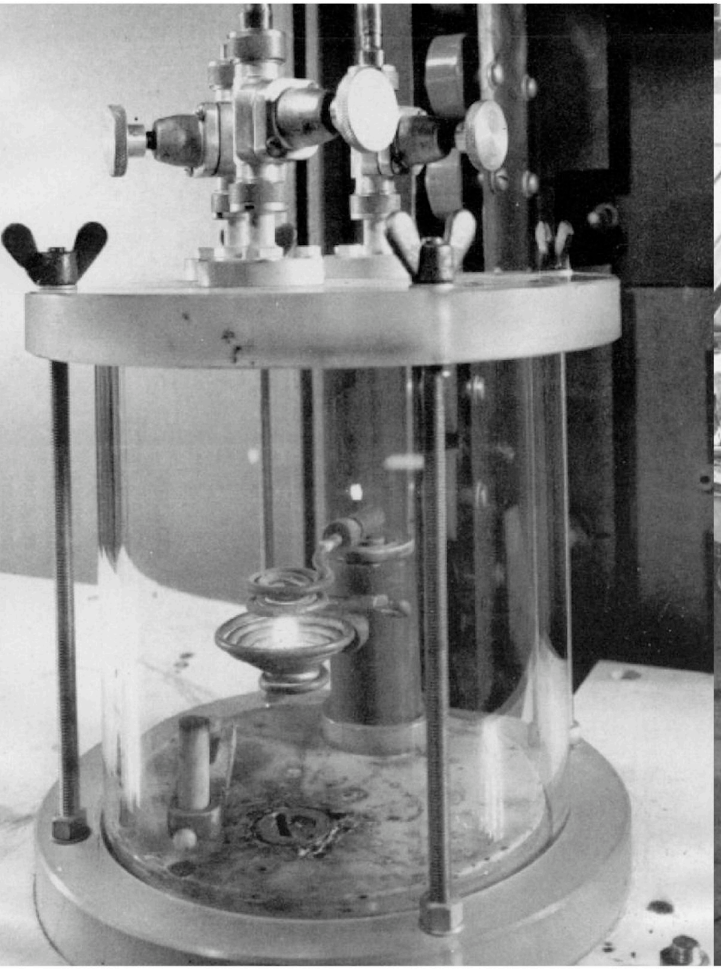
Francis started playing with polarised neutrons in 1966 on the diffractometer DN2 of the CEA-Grenoble. After convincing M. Maier-Leibnitz to build a polarised neutron three-axis spectrometer at ILL, he met P.J. Brown and J.B. Forsyth also interested by polarised neutron techniques. In 1975-76, he worked on superconducting materials and met W.C. Koehler. After his return to ILL, he decided to exploit the Meissner effect and built a prototype of the Cryoflipper. From the successful results, he started to built a prototype of Cryopad with the help of S. Pujol. After solving many problems, he finally succeeded just before the long shutdown in 1990. The Spherical Neutron Polarimetry technique was born. In parallel, he carried out with T. Chupp the first neutrons spin filter test at ILL, making his mind on this challenging equipment.

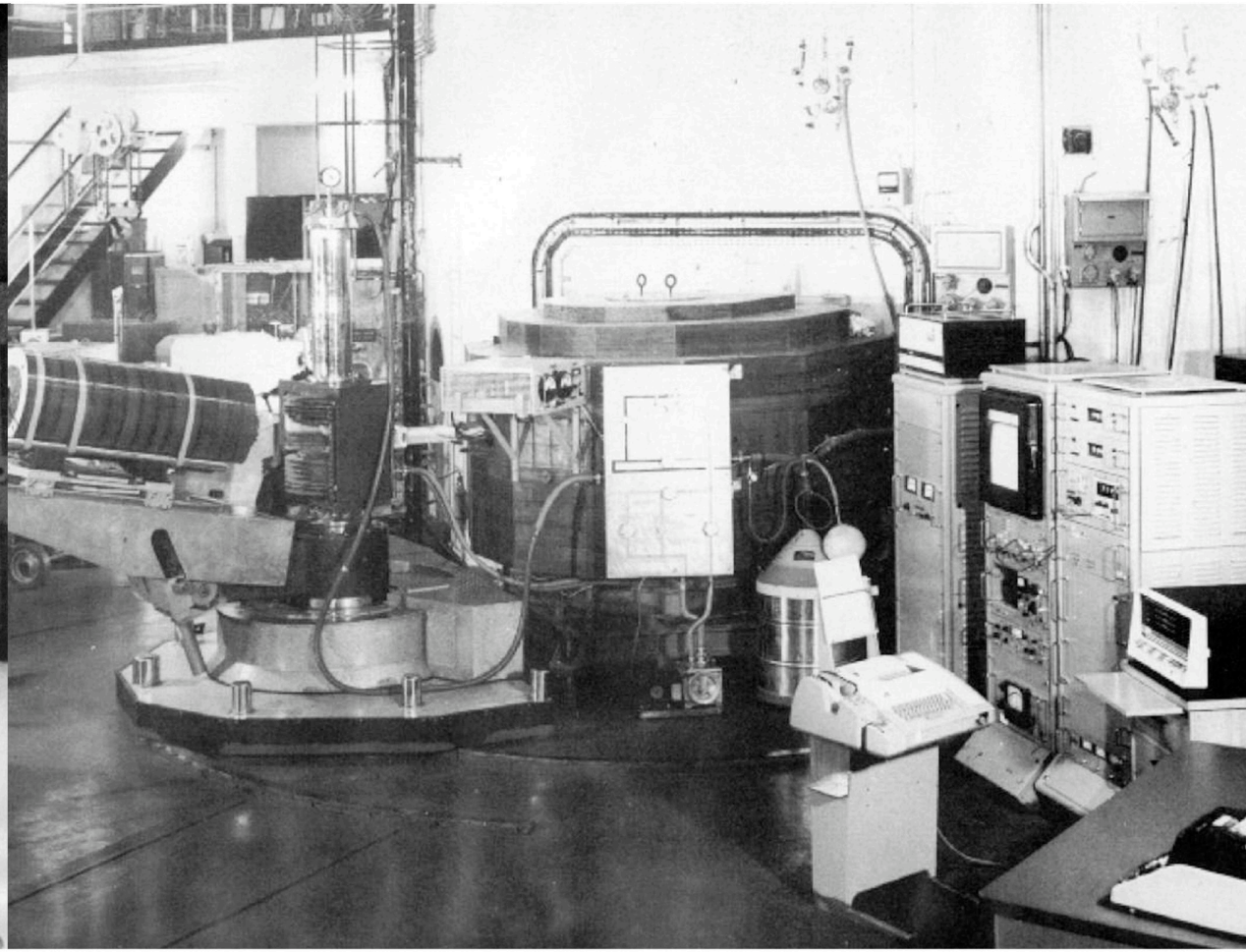
A few years later, thanks to a steadfast motivation, Francis built a second-generation Cryopad at ILL and a first polarised 3He filling station at Mainz University. In 1998, the Spherical Neutron Polarimetry was adopted and people started speaking about 3He spin filters around the world. In 2000-02, he built the filling station which is now the worldwide reference.

The programme of the symposium presents the exceptional scientific impact of his life-long contributions to polarised neutron scattering.

On behalf of the neutron community, we thank Francis very much for his outstanding contribution and wish him well in retirement.

Good reading!





1975 - "Etude par diffraction de neutrons polarisés de la densité d'aimantation
du composé intermétallique YC05 et des composés voisins"
Thèse d'Etat A.O. 10916 Grenoble

Mon cher Francis,

J'ai certainement été ton initiateur pour les neutrons et les neutrons polarisés. Mais notre relation a vite évolué et s'est transformée en une collaboration qui a duré toute une carrière et une amitié profonde qui est bien partie pour durer toute une vie.

Jacques Schweizer

La conversation paisible de Francis cache un enthousiasme rare. Enthousiasme du professionnel qui a su obliger les rétifs neutrons polarisés à faire ce que les livres voulaient qu'ils fissent. Enthousiasme du dilettante passionné par la théorie des cordes. Enthousiasme du montagnard qui entraîne ses amis sur des pentes parfois un peu raides pour eux. Je suis sûr, Francis, que ton enthousiasme ne sera pas éteint par l'âge.

Jacques Villain

Il n'existe généralement que peu d'occasions dans une existence de rencontrer des personnes qui par leurs qualités scientifiques vous influencent de manière déterminante et fructueuse. J'ai eu cette chance en rencontrant Francis Tasset.

Il est délicat pour moi de transcrire en quelques phrases sa ferveur de la science et sa grande générosité. Je me contenterai de traduire un trait de caractère que tous savent identifier par cette affirmation de Démocrite, « Il vaut mieux trouver une seule explication par les causes que posséder le royaume de Perse ».

Rafik Ballou

Thanks very much for many of your outstanding contributions to Neutron Scattering Techniques and to the progress of neutron sciences in general. Polarised neutrons techniques started a new era after your contributions from the early 80's. Your work and efforts during many years at ILL, in collaboration with the different ILL services, clearly contributes to the present ILL leading position in this field.

Thanks very much again and I hope we could still benefit in the future from your enthusiasm and knowledge,

Jose Luis Martinez

Avec Jean-Pierre Guigay (Michel Schlenker étant derrière le viseur) lors de la session "Imaging Processes and Coherence in Physics" aux Houches, il y a 30 ans: tu n'as guère changé, Francis. Continue comme ça ! Toutes mes amitiés, **Michel Schlenker**

Francis, tu as accumulé beaucoup de succès ! En diffraction, en méthode neutronique, en instrumentation en général. Chapeau !
Ton engagement, ta volonté d'aller jusqu'au bout des solutions t'ont attiré admiration et respect. Ton souhait de perfection et de faire simplement ce qui doit être fait ont pu t'attirer quelques inimitiés passagères. En fin de compte, le résultat est là : tu es reconnu pour tes succès dans le domaine de polarisation des neutrons, succès qui doivent beaucoup à ton entêtement salutaire ! Re-chapeau.
Souviens-toi du temps de Wally, de Monsieur Bertaut, Rossat et d'autres. Pense au travail au CEN-G, aux premiers diffractomètres de l'ILL, au travail avec Jacques. Regarde le chemin parcouru grâce à toi, tu peux être fier. Tu t'es passionné par ce que tu as entrepris, en fait tu n'entreprends que ce qui te passionne. Et tu es resté passionné. Nous nous sommes rencontrés, il y a longtemps, du temps de la rue des Alliés et la MNEF. J'ai pu apprécier tes idées, ta générosité, et ton enthousiasme. Au Ski-ILL, tu appris le ski à de nombreux enfants.
Je suis persuadé que la communauté scientifique et l'ILL se souviendront de l'ampleur de tes développements pour les filtres He3. Mais il y a eu d'autres domaines que tu as défrichés : l'Europe en particulier. Là encore, tu as fait œuvre de pionnier. Au début, il n'était pas évident que ces projets « bruxellois » amèneraient de tels progrès pour les collaborations européennes. Là aussi, tu as mis l'ILL sur de bons rails ! Merci.
Encore fois, je te tire un grand coup de chapeau. Malheureusement, je ne peux pas être présent ce jour à l'ILL avec toi et tes amis pour célébrer tes succès. Avec toute mon amitié, je te souhaite beaucoup d'activités de grand-père heureux et satisfait. A bientôt, je suis sûr.

Christian Vettier

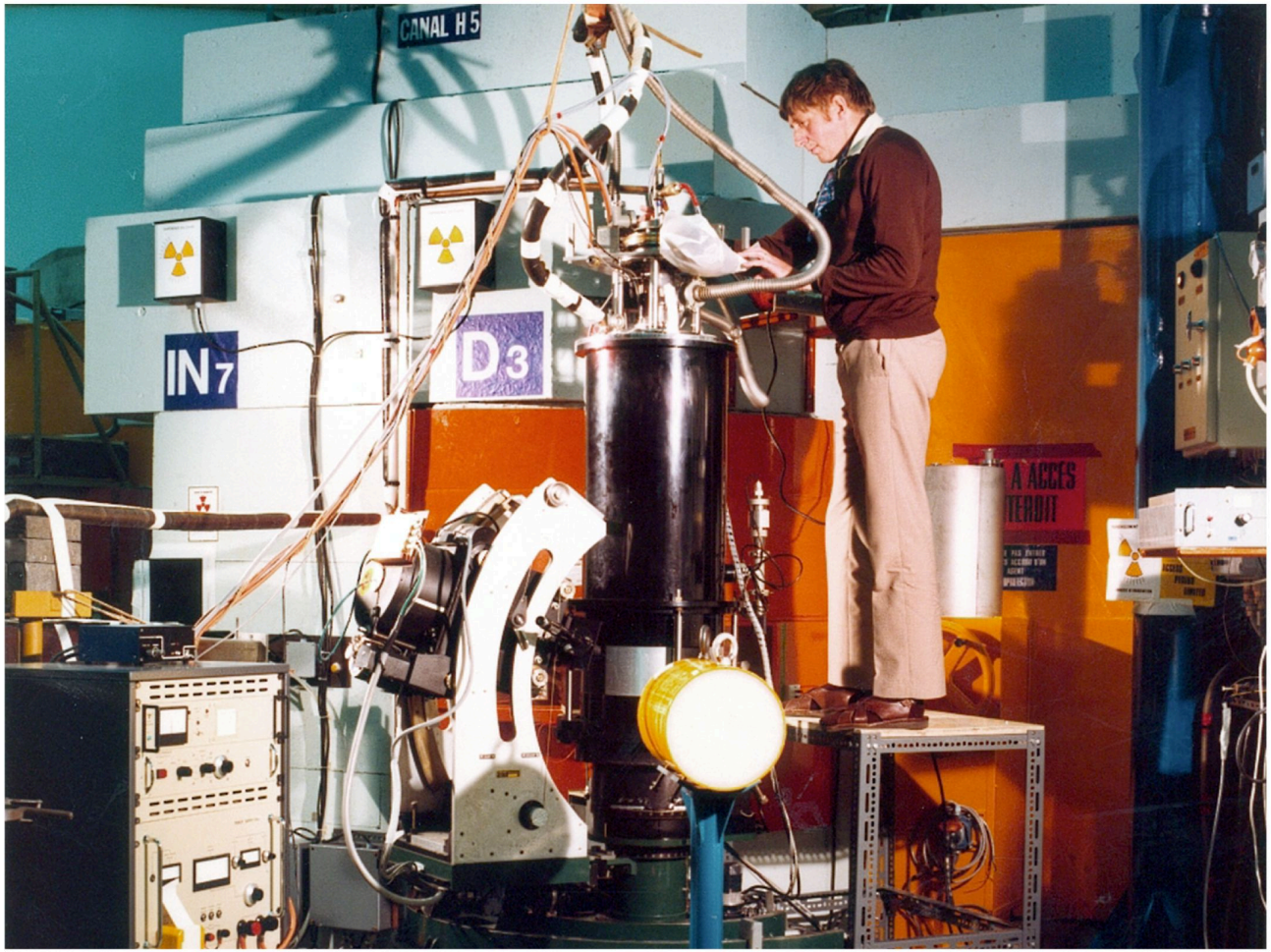
My modest friend Dr. Francis TASSET has made outstanding contributions in the field of polarised neutrons. He also helped me a lot during my thesis work. Therefore I am very happy to celebrate his helpfullness and achievements and have a drink with him on the 6th of march ... and after his retirement!

Jean Blétry

"Point n'est besoin d'espérer pour entreprendre, ni de réussir pour persévérer."
… et de temps à autres ça réussit en plus ! Félicitations et amitiés,

Feri Mezei

1975 - The polarised neutron diffractometer D3.



1976 - Bruce Forsyth prepares the new 4.6T cryomagnet.

When I think of the contribution that Francis has made to the ILL, it is perhaps his quest for perfection that stands out above the rest.

Few other of our scientists or technicians have insisted on the same excellence in technical, engineering and most importantly scientific achievement. Although D5 may long since have passed away, D3, Cryopad and the He3 filling stations remain as lasting reminders of his achievements. Thank you Francis!

Jane Brown

I welcome this opportunity to record the pleasure I have received through knowing Francis, both as a family friend and as a scientific collaborator. The kindnesses shown to my wife and our children when we first lived in Grenoble and subsequently on many visits remain as fond memories. Visits to the Vercors and skiing ensemble coupled with Marie-Eglé's food –marvellous.

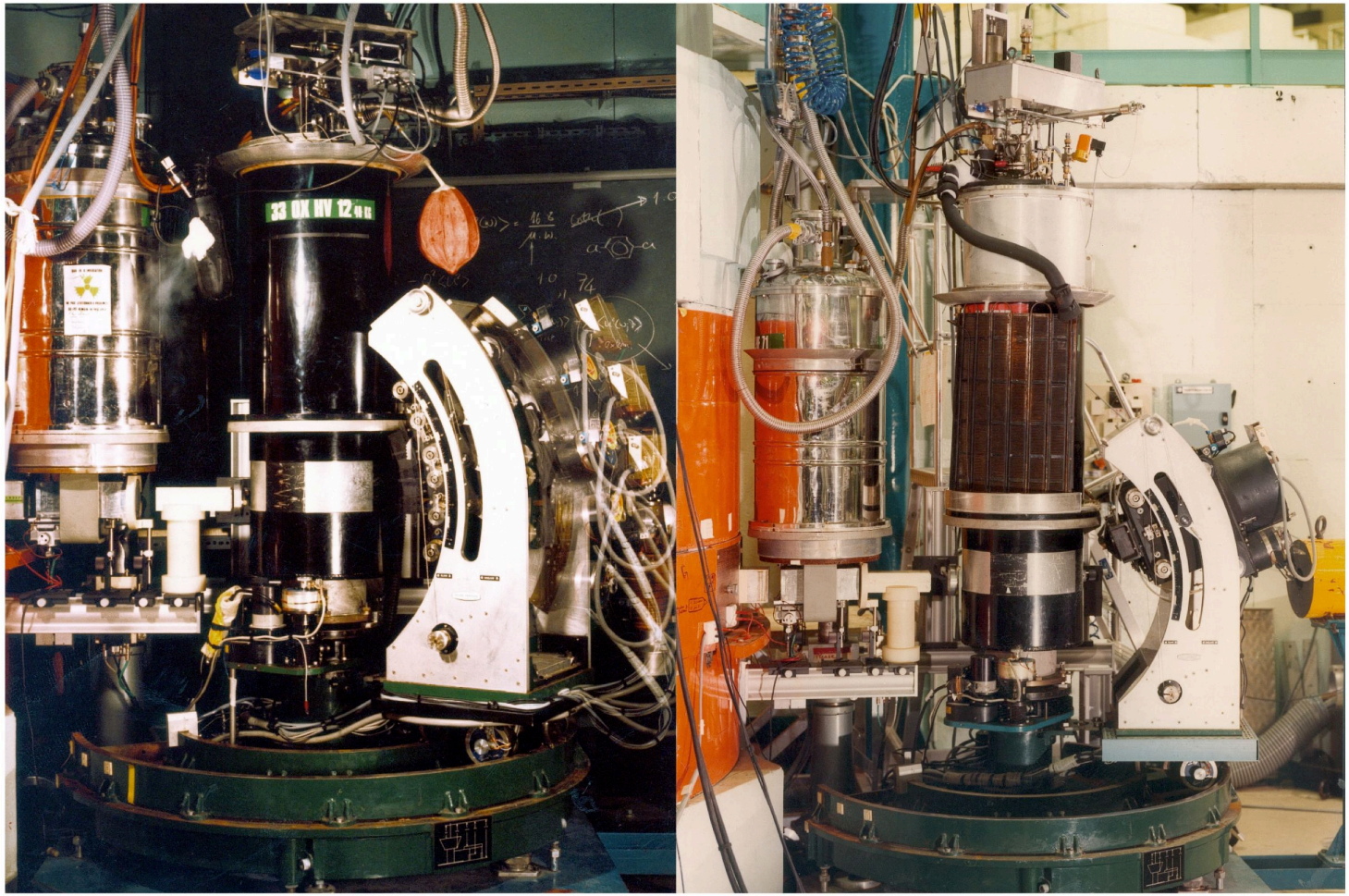
Scientifically, both in his help in defining D3 and subsequently in its many upgrades, Francis has been a kindred spirit in his care for engineering and brilliantly in the lead in his exploitation of super-conductivity to realise his dream of spherical polarisation analysis. The papers published jointly with Jane Brown and myself record the result of many hours of mutual struggle on which respect is truly based.

Bruce Forsyth

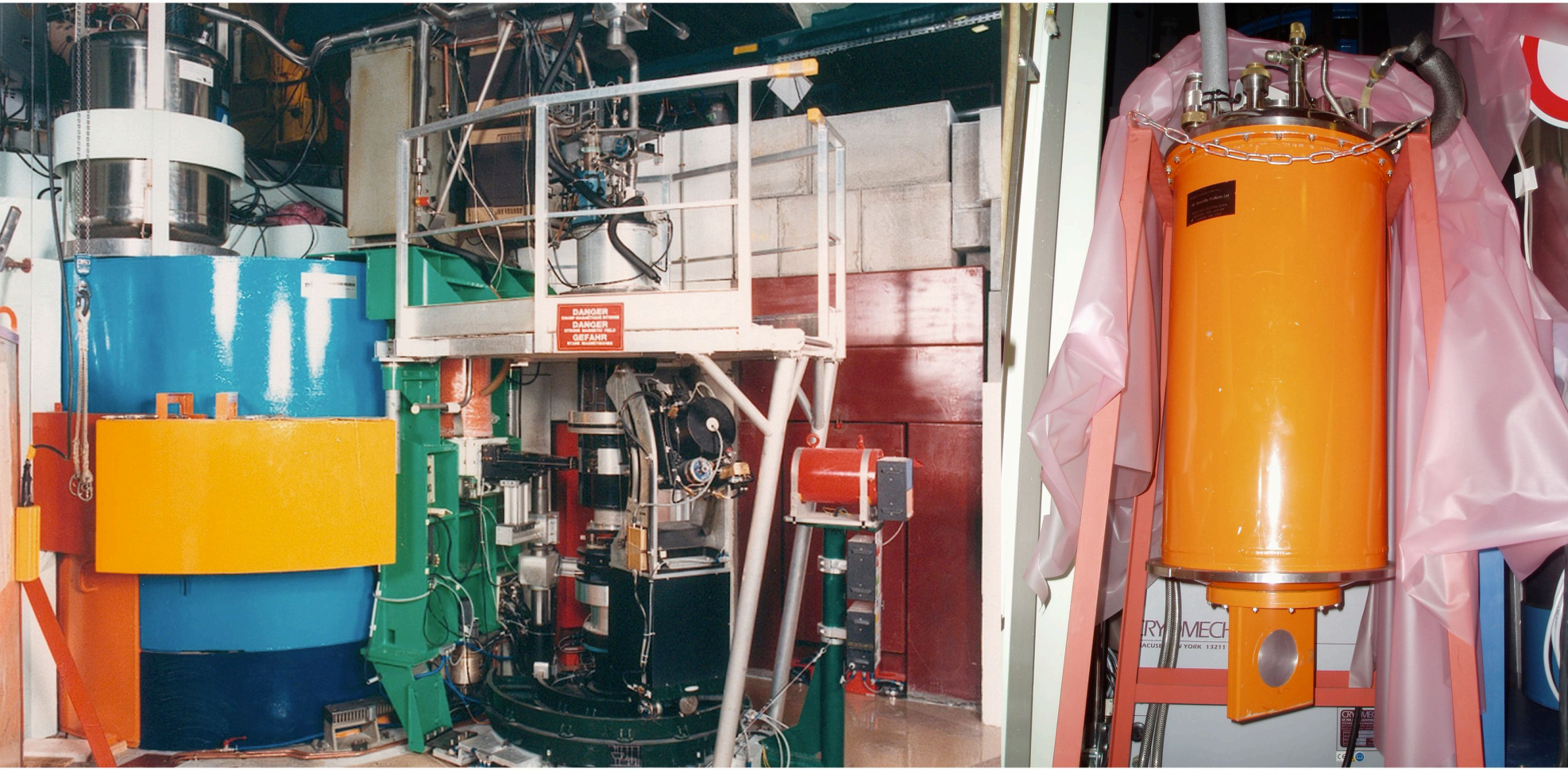
I'm very sorry to be unable to attend and to speak personally at your retirement celebration. Your outstanding accomplishments have made possible experiments, by you and others, that were long desired. From the earliest days of theoretical work by Halpern and Johnson, to the post-war experiments once reactors became a copious source of neutrons and Fermi and Shull and their coworkers produced and used polarised neutron beams, it was not possible to do experiments in which the full vector character of that polarisation was measurable. In the presence of a magnetic field only the flipping ratio could be detected, but your zero-field polarimeter changed all that.
I congratulate you and wish you well in retirement. I myself have retired but I am, as I suspect you are, still actively working, and it is a most pleasant way of life.

With my very best wishes,

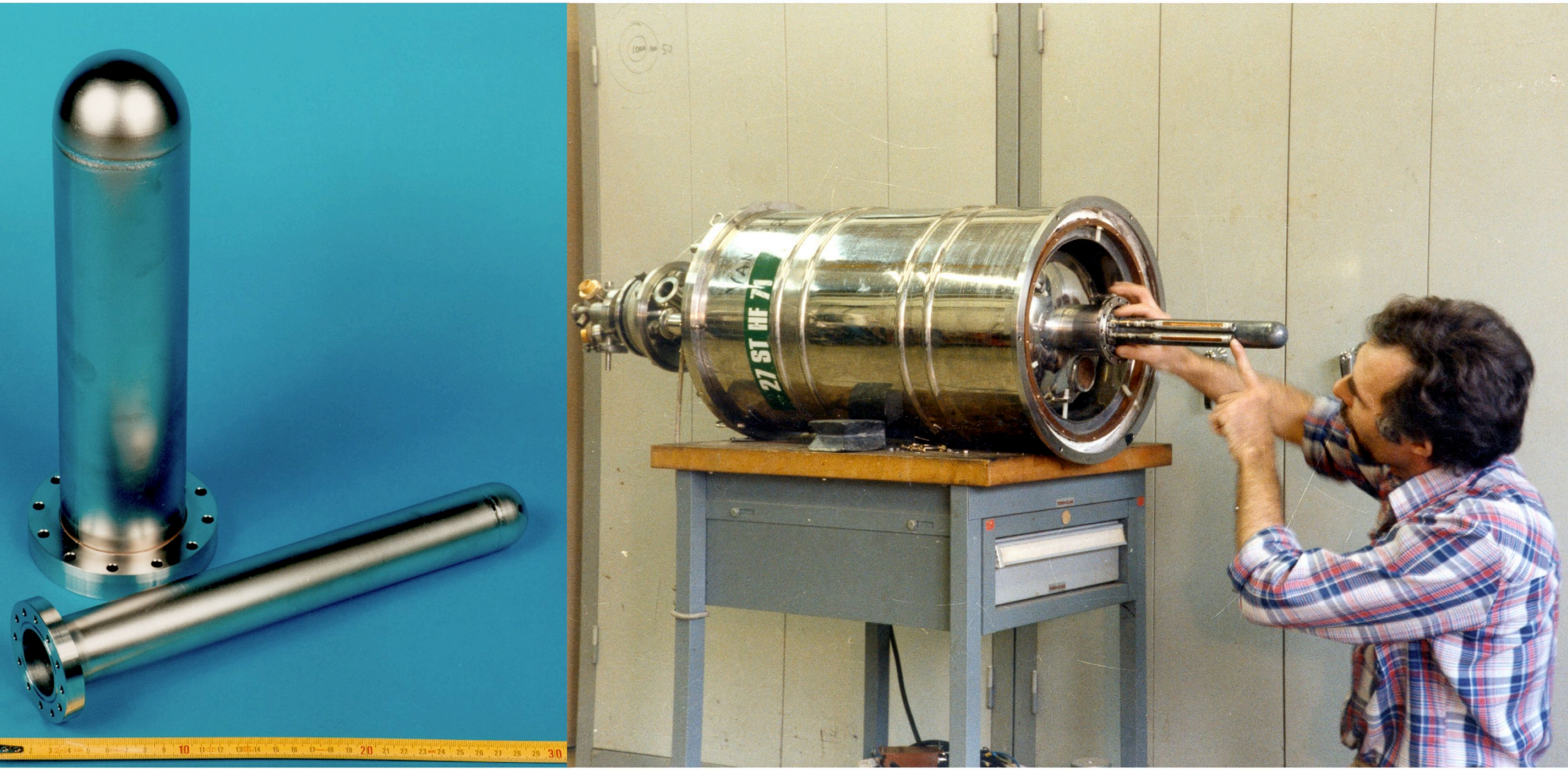
Marty Blume



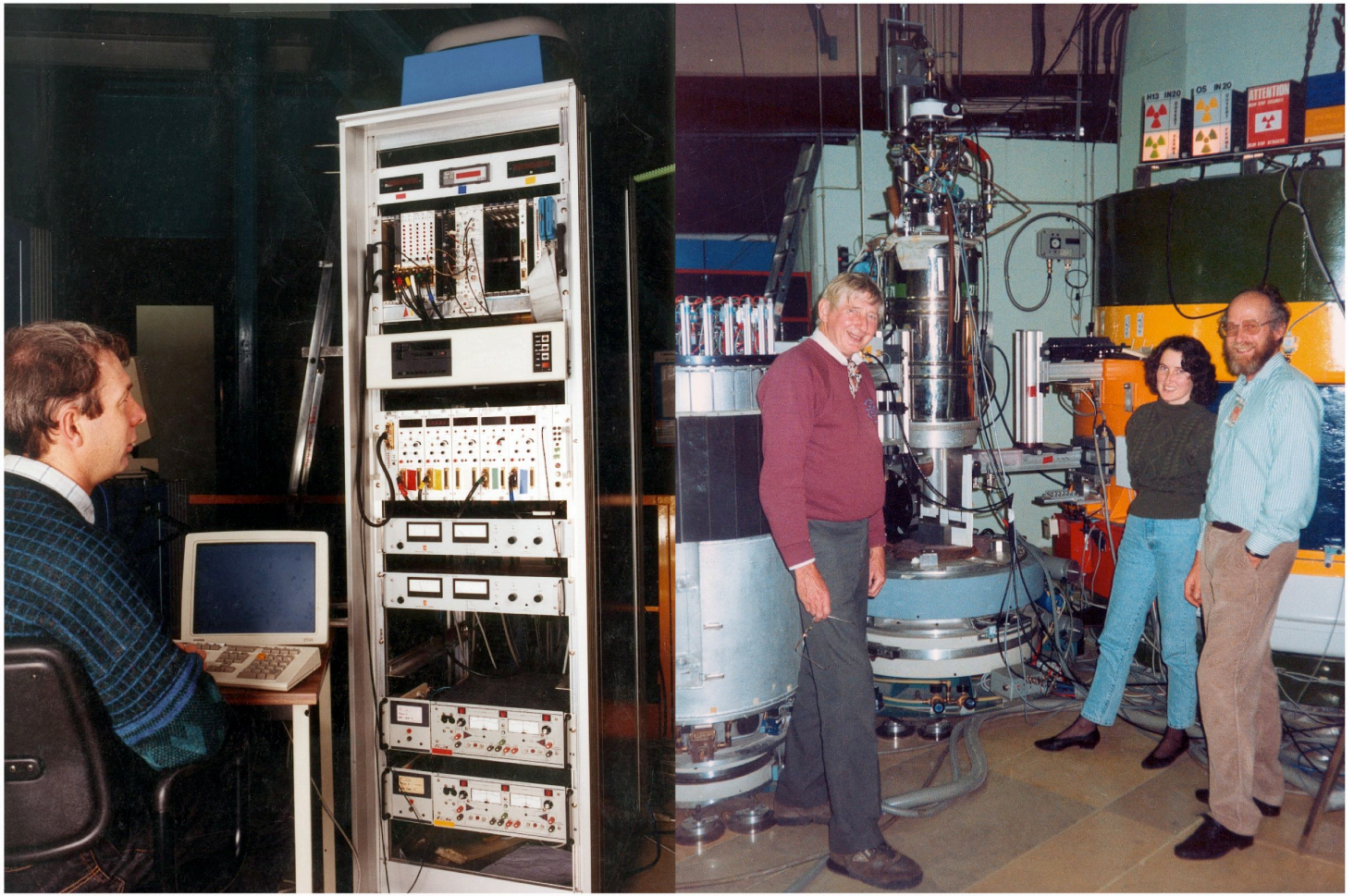
1977 / 1986 - Development of the Cryoflipper and modification of the 4.6T cryomagnet.



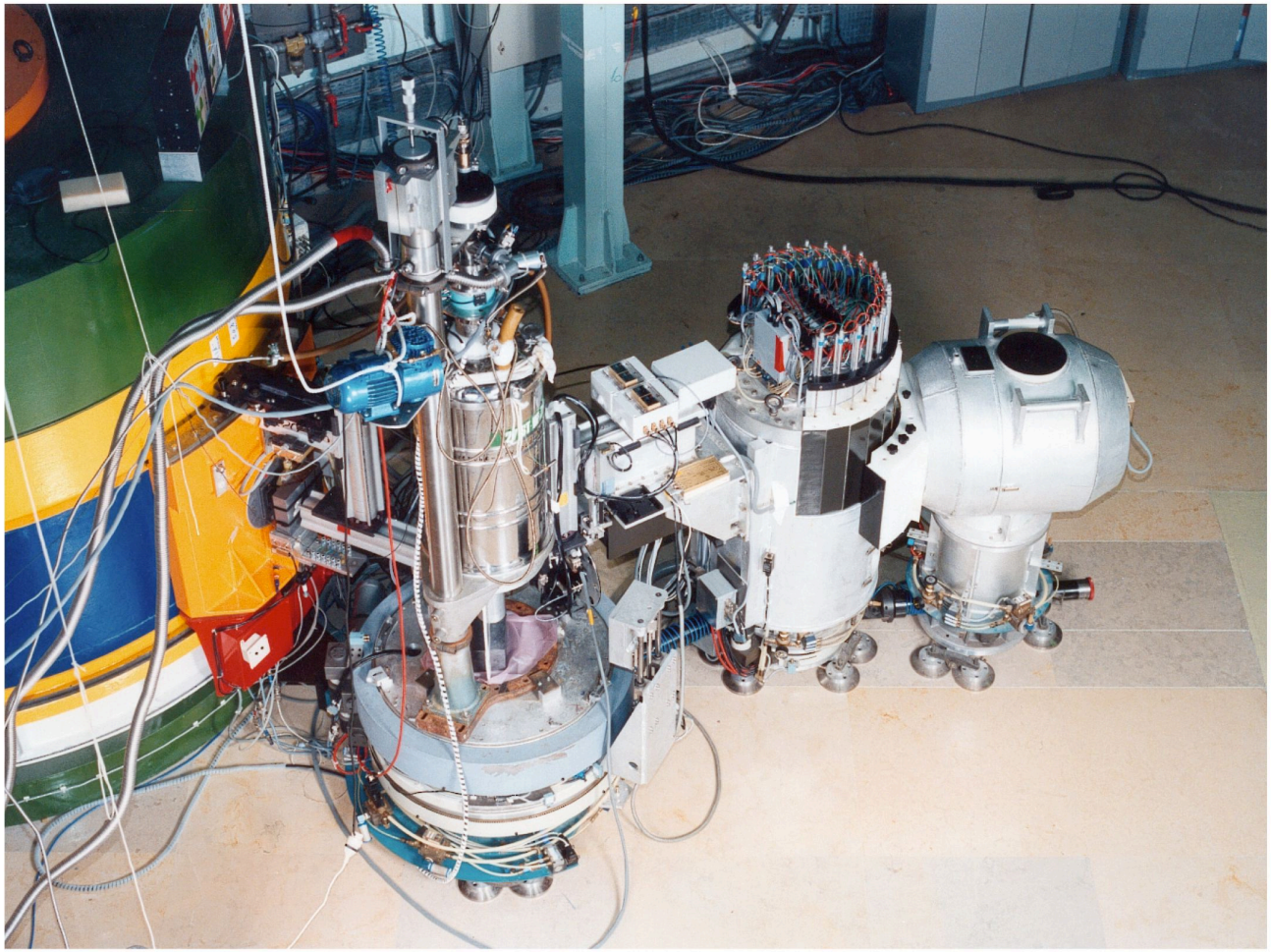
1988 - D3 is rebuilt at the hot position H4 (D3B).
Several copies de the Cryoflipper are produced.



1987 - Serge Pujol checks the alignment of the precession coils of Cryopad.



1990 - Jane photographs the Cryopad team.



1990 - Cryopad on IN20.
Spherical Neutron Polarimetry is invented.

It will be a great pleasure to celebrate with you on 6-March. The Cryopad story is a real success story of neutrons. I have used it many times and find myself always having to think out the whole thing again from the beginning - but it works! We have some beautiful data from an inelastic experiment with Louis-Pierre Regnault, and I hope soon to see this published.

It is not only a pleasure to work with the Cryopad, it is also a pleasure to have known you and your wonderful wife for so long. Happy retirement and happy scattering of neutrons!

With my very best wishes,

Gerry Lander

It was not only a privilege to work with you, it was FUN! The ILL in the 80's was an exciting place and I am proud to say that I was part of a team that tried hard - together - to get new, ground breaking machines to work reliably and efficiently. Our time together on D3 and on CRYOPAD 1 on IN20 was memorable for me as we succeeded in these goals with computers that would be difficult for people to imagine nowadays.
All the best

John Allibon

My first Cryopad experiment - using the Mark I version many, many years ago - was in many ways an unforgettable experience. Your scientific and technical and logistic support were absolutely crucial and the hospitality provided by your lovely wife was most welcome and much needed. I wish you well in your retirement and hope that you discover an interesting life beyond polarised neutrons. Best wishes

Uschi Steigenberger

C'est avec beaucoup de plaisir que je me souviens de multiples discussions avec Francis Tasset au sujet du pompage optique de l'hélium et des cibles d'hélium 3 polarisées pour les faisceaux de neutrons. J'ai eu beaucoup de satisfaction à constater que des méthodes de physique inventées pour des recherches de physique atomique fondamentale pouvaient aussi trouver des applications en neutronique. Ma collaboration avec Francis Tasset a été très fructueuse et s'est doublée d'une amitié concrétisée par des nombreuses rencontres autour d'un verre de bière au buffet de la gare de Grenoble...
Je souhaite à Francis une retraite active et heureuse et lui renouvelle toutes mes amitiés.

Michèle Leduc

I first became involved in polarised 3He in 1990, at about the same time that the first experiments were conducted at the ILL. Hence upon reflecting on this symposium, which I regret that I will not attend, I realized that we have both worked in this area in the same span of two decades.

However we did not first meet until 1996, when I became more actively involved in spin filter development at NIST. The application of neutron spin filters based on polarised 3He has expanded rapidly in the last several years, but the seed of that growth, as well as the notable accomplishments at the ILL, is directly related to your leadership. I have enjoyed the few opportunities we have had over the years to discuss this area.

Best wishes on the occasion of well-deserved recognition.

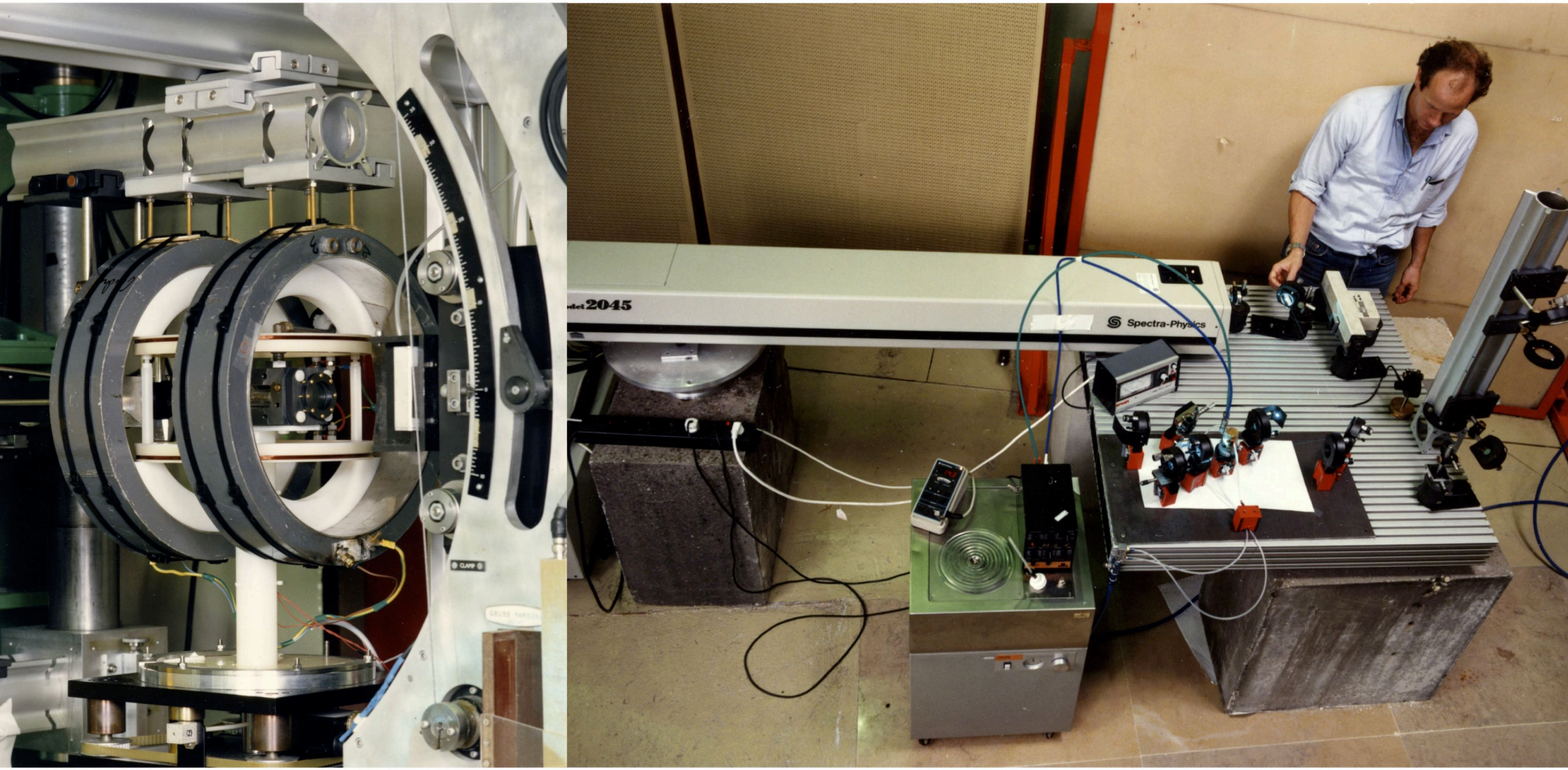
Tom Gentile

'To flip or not to flip that is the question'
Enjoy your celebration and every good wish for the future.

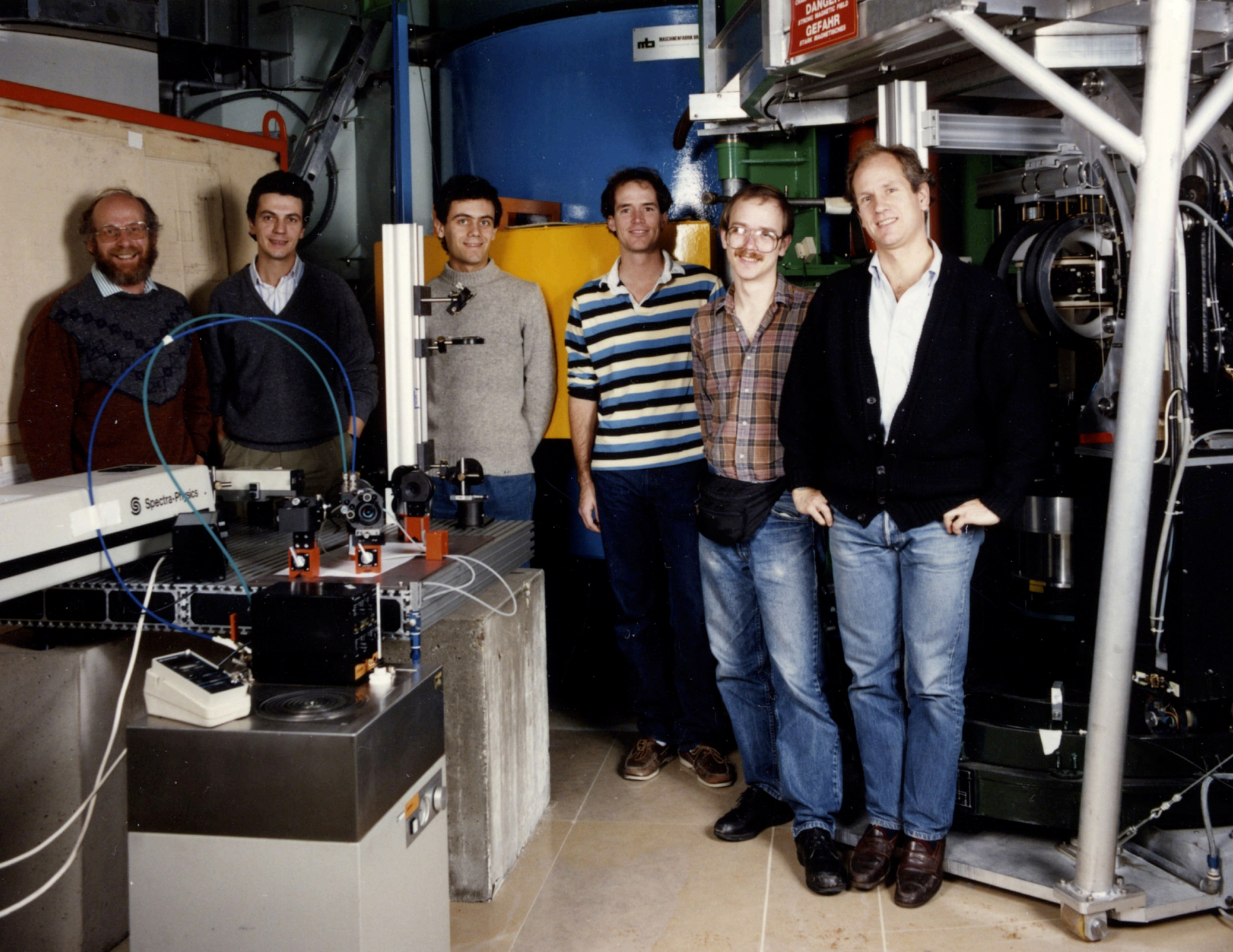
Kurt Ziebeck

Francis a très tôt compris l'intérêt potentiel de l'hélium 3 polarisé pour la physique des neutrons. Il a su nous convaincre, dans nos laboratoires, de l'importance de cette application du pompage optique, et les développements instrumentaux qui y ont été entrepris à la fin des années 80 ont abouti, il y a 13 ans, au premier filtre à hélium 3 polarisé à l'ILL. Cette performance a été le fruit d'une étroite collaboration avec l'équipe de Mayence, la première à maîtriser l'art délicat de la compression d'hélium polarisé, et a marqué le début de l'histoire de l'hélium polarisé à l'ILL. Mais Francis a aussi su établir un contact amical et étroit avec notre équipe à Paris, bien que nous ne soyons pas aussi proches de cette application. Sa curiosité scientifique constante pour tous les problèmes relatifs à la polarisation a souvent suscité des discussions utiles et enrichissantes, et c'est sans aucun doute grâce à son enthousiasme que nous avons très vite trouvé passionnante la physique qui est faite avec les neutrons et l'hélium, et que s'est établie la collaboration solide qui nous lie à l'équipe qui polarise l'hélium à l'ILL. Les résultats à venir de ce travail commun seront aussi le fruit de la passion communicative de Francis.

Geneviève Tastevin & Pierre-Jean Nacher



1990 - First test at ILL of a gaseous 3He neutron polarisation filter.
The filtering of the neutron spin is becoming a reality.


Spectra-Physics
DANGER
STRONG MAGNETIC FIELD
GEFAHR
STARK MAGNETFELD


Congratulations Francis!
Martine, Marika, Ethan, Theo and Tim

Dear Francis,

Over the past 20 years, our relationship has been about physics and it has been about family.

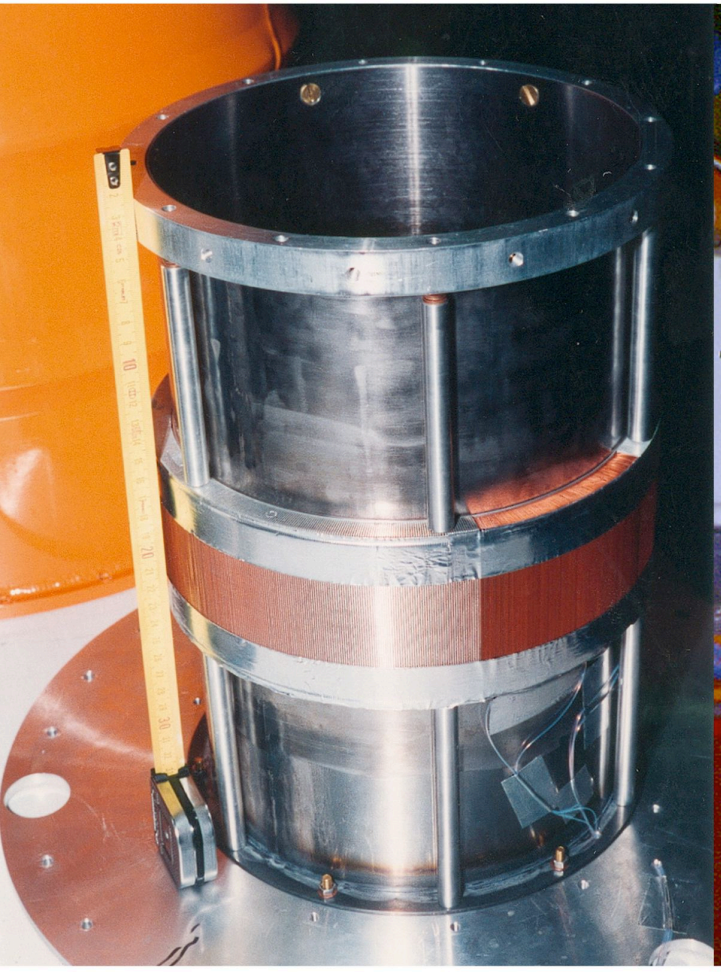
We first met in 1989 Paris in order to discuss the possibilities of using gaseous 3He at ILL and soon decided to do a test at ILL in the fall of 1990. It was necessary to pull together many resources and collaborators. You forged a collaboration that included laser expert Professor Jean-Paul Pique from the University of Grenoble and my group from Harvard. The instrumentation included the instrument D3 with its iron-cobalt polarizing crystal and cryoflipper, the Titanium-Sapphire laser, a brand new technology at the time, and the rubidium filled SEOP cells and heating system from Harvard. At the time, we were still just learning how to make the SEOP cells, and the D3 cells were among the first cells ever made by my group at Harvard. In order to make the 3He density high enough for the hot neutrons from D3, the cells were filled to just under one bar pressure at liquid nitrogen temperature and probably pumped contaminants that limited the polarization lifetime of the 3He. The consequence was lower 3He polarization than expected - about 10%. From my perspective the quantitative results did not reduce the impact of the successful demonstration that gaseous 3He was useful for polarization and polarization analysis of a broad band of neutron energies.

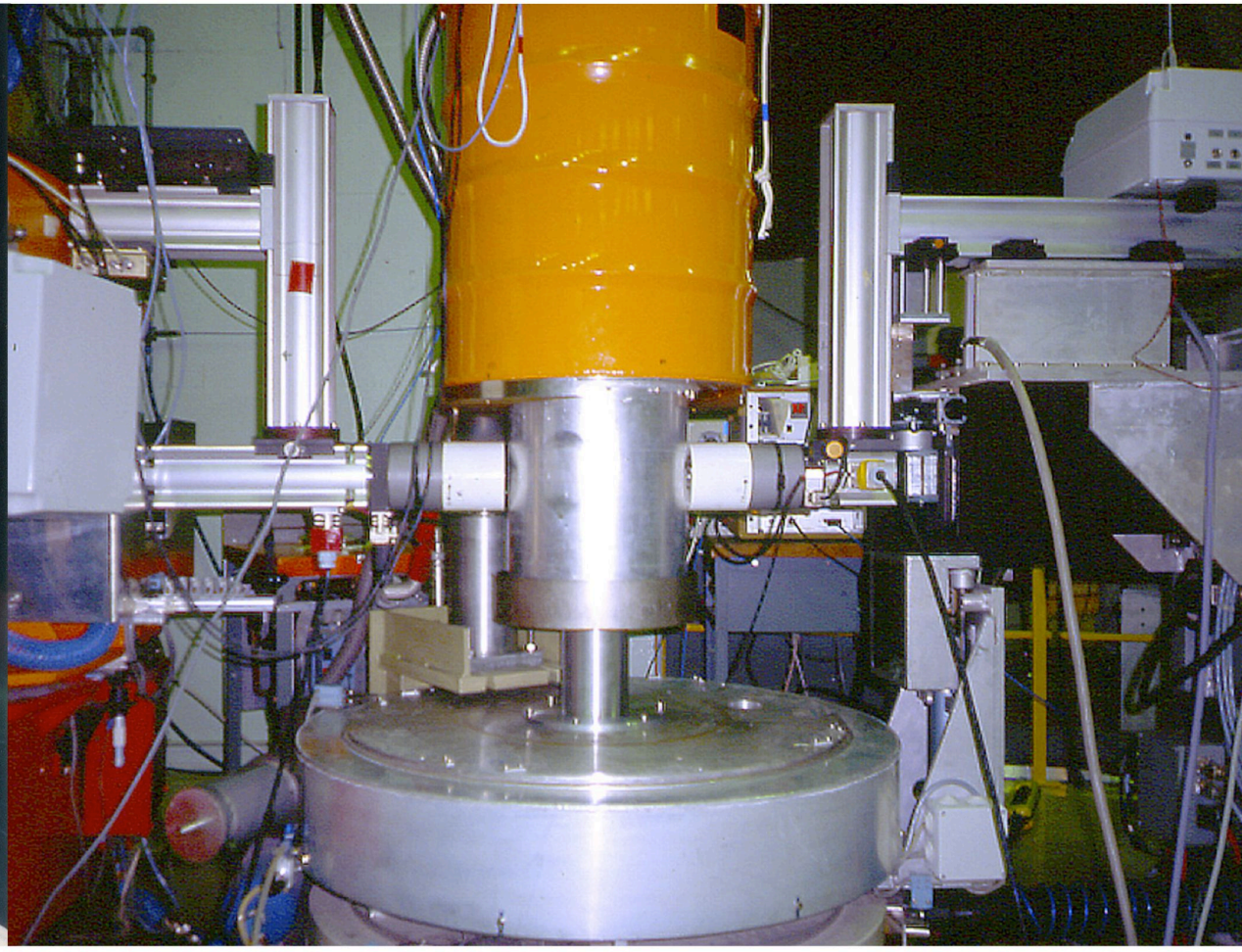
Our solid scientific collaboration was most concentrated during preparations and the beam time for the 1990 ILL experiment, but our friendship has become more solid over the years since. You and Marie-Eglé have been persistently generous in welcoming me and my family into your lives. Our visits to you opened new parts of the world and the mountains of France to Martine and me in our early days, and now the same world has been opened to our children during the time our family spent in Grenoble in 2006. As our families have grown, we have grown closer and we do look forward to many more days together celebrating physics and family.

It is a great pleasure to have worked with you and to now celebrate the 20 years of Tasset-Chupp collaboration.

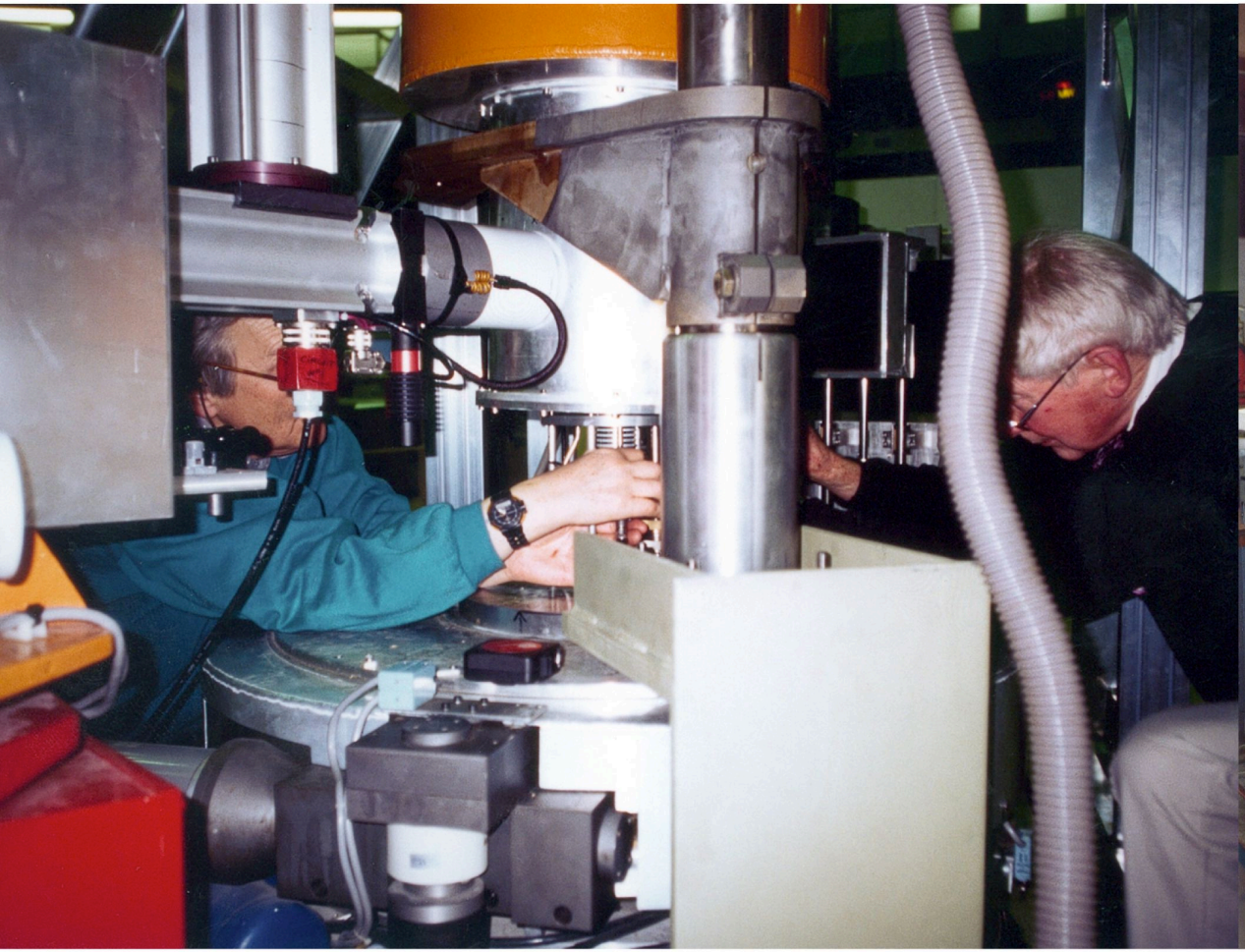
With our best wishes,

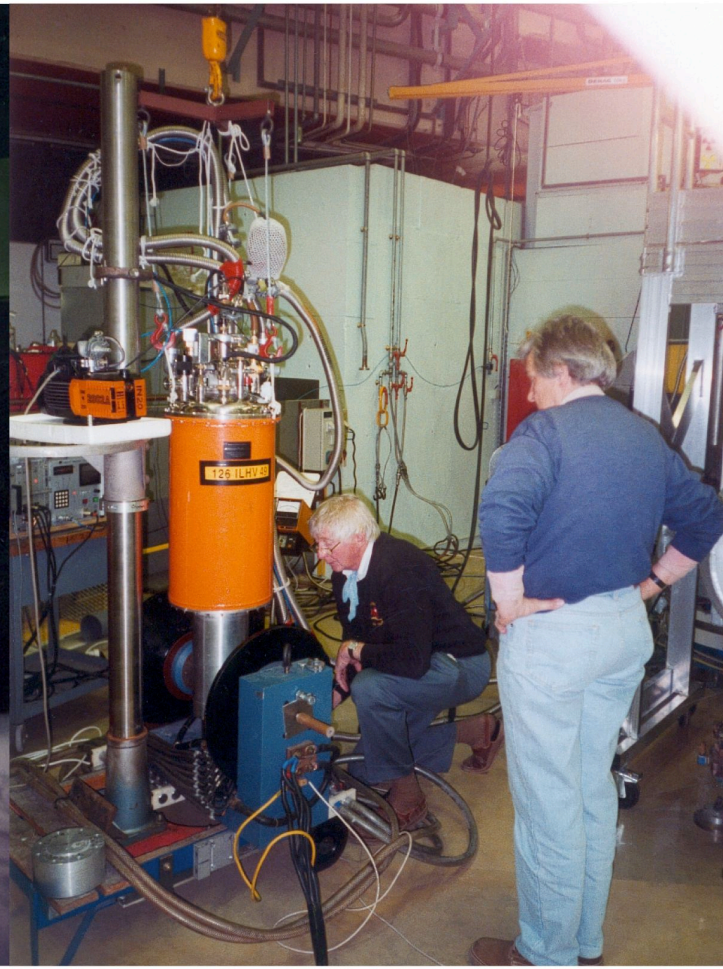
Martine, Marika, Ethan, Theo
and Tim Perreault-Chupp



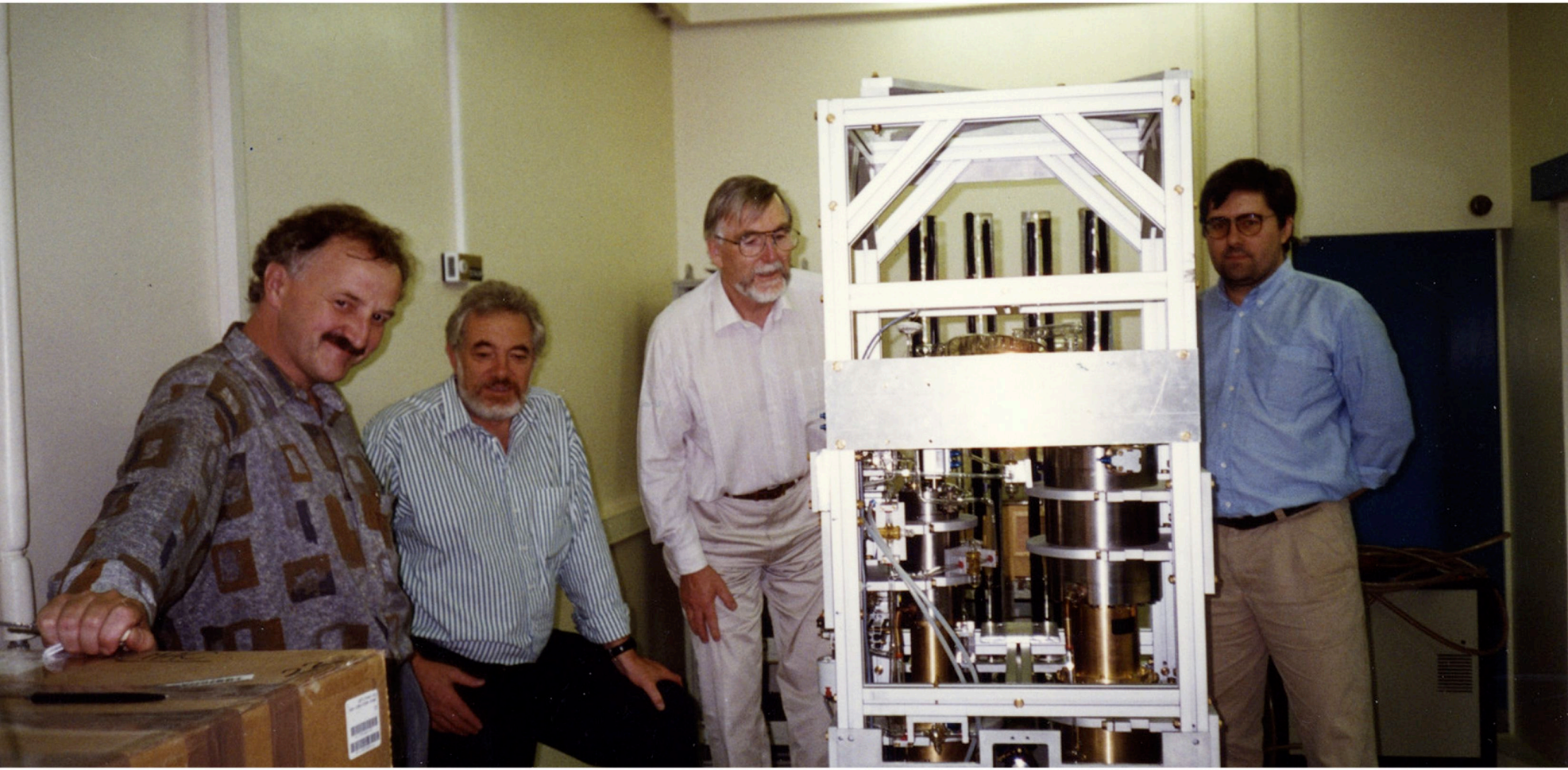


1994 / 1996 - Construction of the second-generation Cryopad.
A big step forward to the recognition of the Spherical Neutron Polarimetry technique.

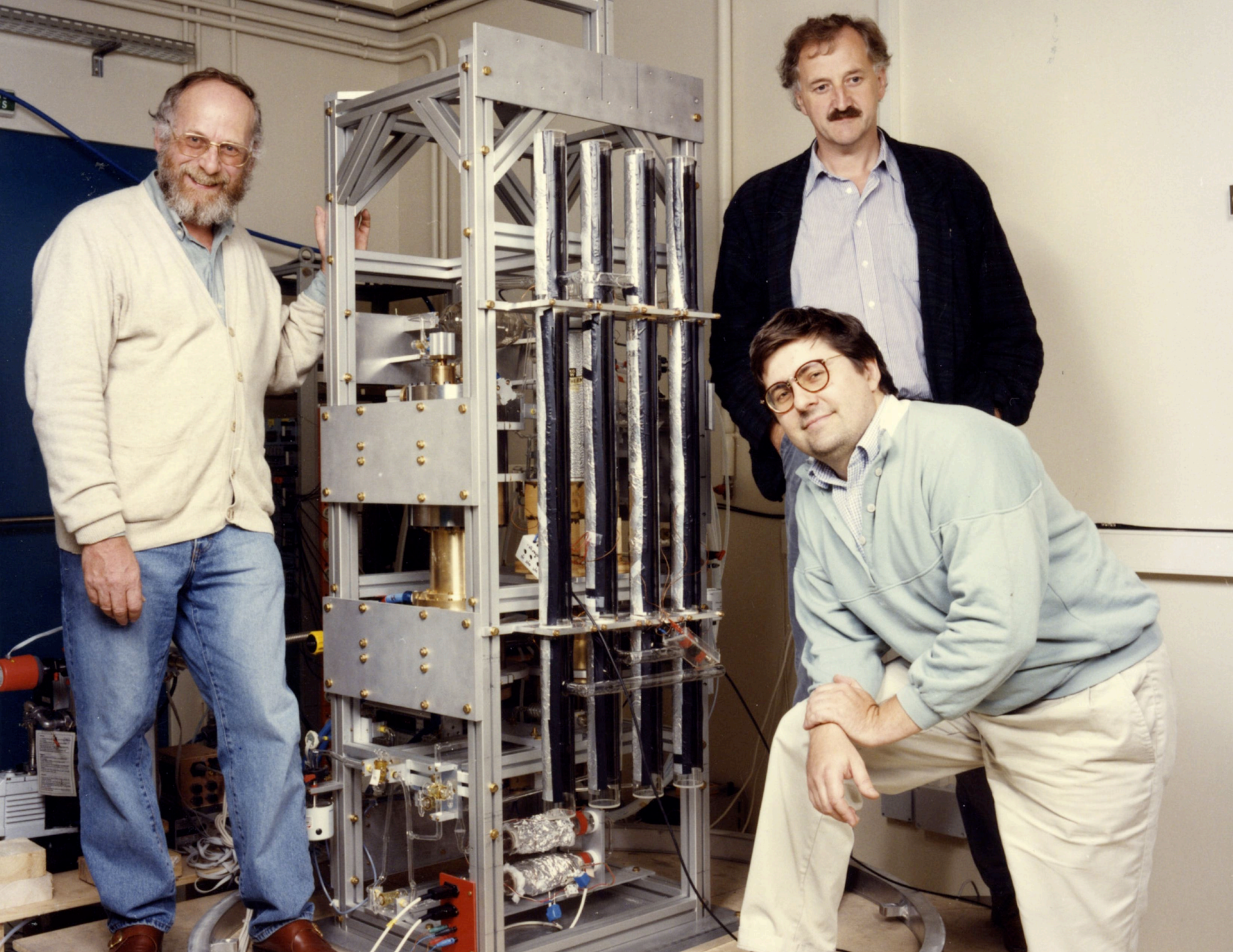


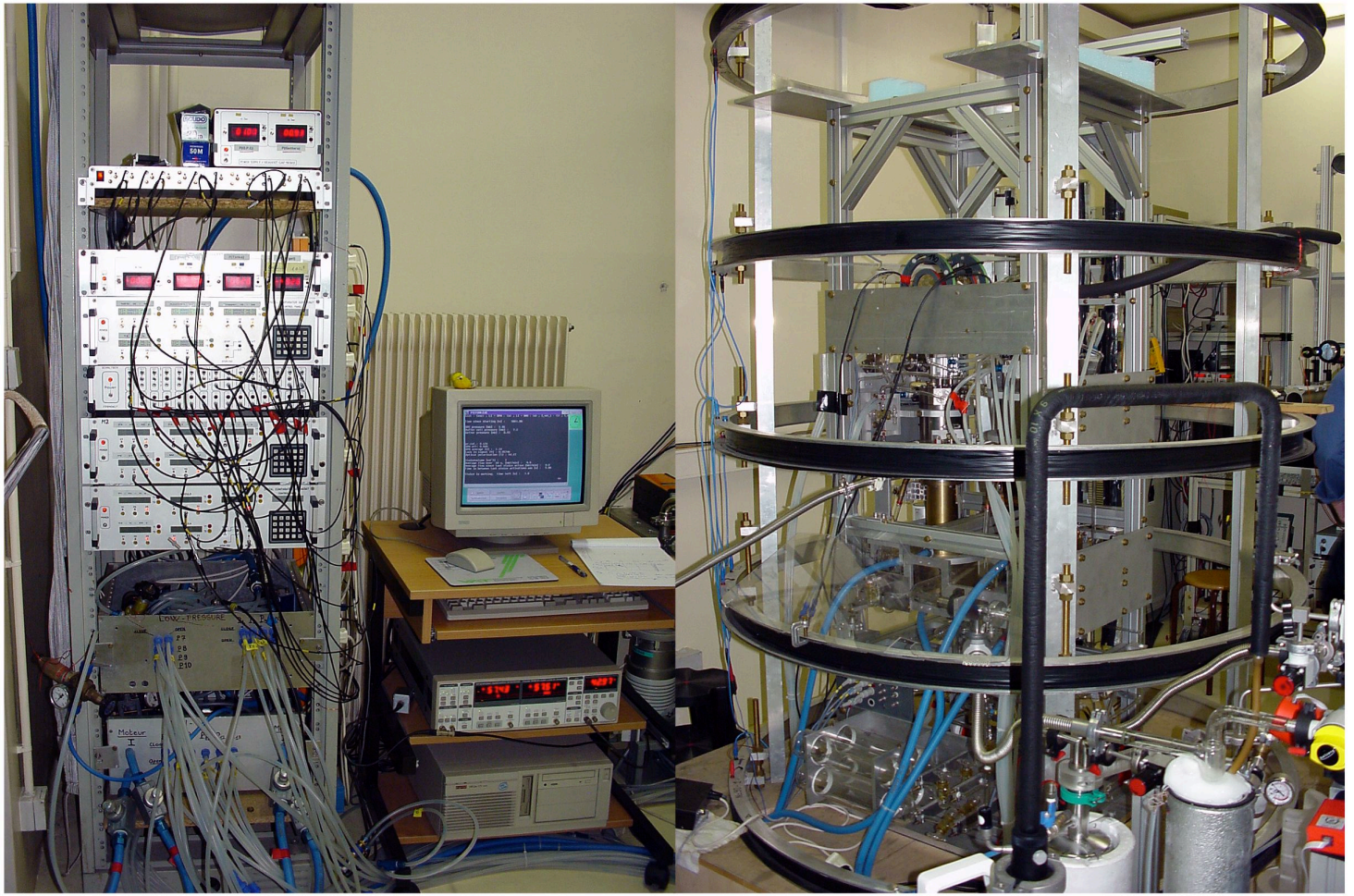


1997 - Jane & Bruce play with magnetic domains in Cryopad-II.



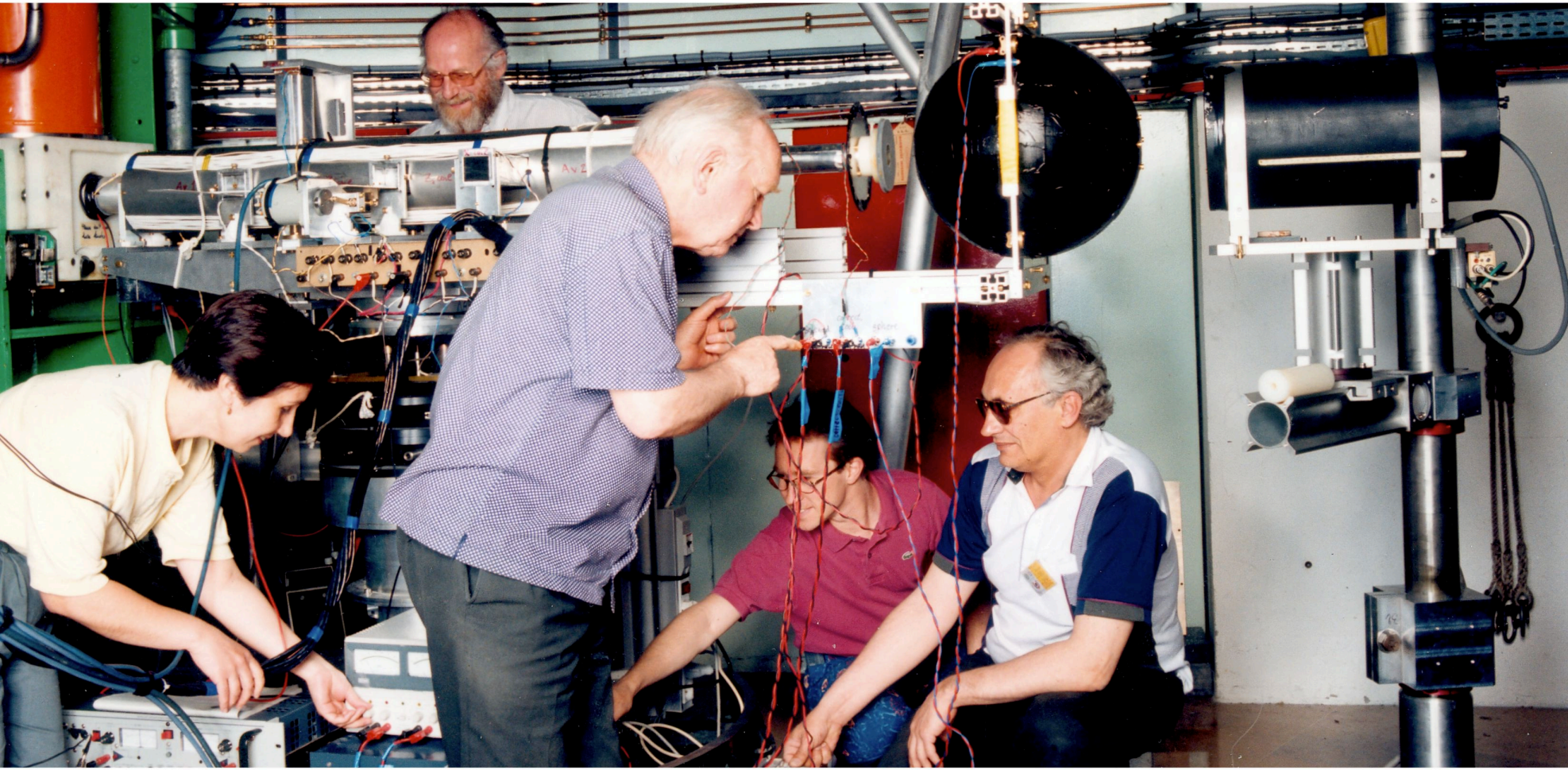
1996 - The first generation filling station COW built at Mainz is delivered to ILL.
(Werner Heil, Reinhard Scherm, Alan Leadbetter and Hubert Humblot)





Up to 55% 3He polarisation on neutron beams!
The first scheduled experiments are very successful.

The cell preparation is crucial and many materials, valves and recipes are investigated.
The lifetime is going to raise from 40 to 1000 hours in a decade.



My family and me we always remember your good willing and warm relation in our most difficult time. We wish you many happy days. **Alexander Petukhov**

Je n'ai fait votre connaissance qu'à la fin de votre riche carrière et ce fut un honneur pour moi que de collaborer avec vous dans un programme européen. Je garde également un excellent souvenir de ce déjeuner champètre à l'Ermitage pour la fin du contrat FP5.
Je sais que vous avez une retraite active et bien remplie que je vous souhaite enthousiasmante. J'aurais toujours beaucoup de plaisir à vous revoir.

Isabelle Petit

Hormis le scientifique de talent que vous êtes, nous souhaiterions nous attarder sur la personnalité de l'Homme. Pour Eddy, vous vous êtes montré un guide bienveillant, disponible, un excellent instructeur, un ami précieux. Sachant que derrière tout homme se cache une femme, seriez-vous aujourd'hui, le même Francis que nous apprécions tous sans votre épouse ? Marie-Eglé nous estimons votre patience, votre soutien, votre sourire, votre maison toujours ouverte. Soyez-en remerciés tous les deux et nous vous souhaitons beaucoup de belles années, avec les vôtres dans votre Vercors.

Jean & Marie-Odile Lelièvre-Berna

Je te souhaite une bonne retraite, sachant que tu continueras à faire beaucoup de choses.

Je te remercie pour les visites que tu as faites avec moi pour donner la meilleure image possible de l'ILL aux visiteurs.

Bises

Ingeborg Te Gröen

Cher Francis,

J'ai mes doutes que tu peux vraiment t'arrêter. Mais si oui, je te souhaite de pouvoir profiter pleinement de ta nouvelle liberté.

Je me souviendrai avec plaisir de ta gentillesse, ta jeunesse d'esprit et nos rencontres brèves, mais toujours amicales.

A bientôt - peut-être au Club Mac?

Roland May

J'ai toujours été impressionné par ta créativité. Je me souviens très bien de discussions de couloir où tu m'as parlé des prémices du fameux projet Cryopad et du, non moins fameux, projet Hélium-3. Bien entendu je n'avais pas tout compris mais j'étais épaté.

Je me souviens aussi de tes colères contre la direction de l'ILL et autres freins à tes projets, mais sans doute était-ce indispensable pour forger cette belle pugnacité qui t'a permis de franchir tous les obstacles à la réalisation de bien jolies choses. Et puis, ayant de beaux projets, tu as su t'entourer de gens plutôt performants et, chose rare, tu as su leur laisser la place le moment venu. Je ne dis là que des évidences mais ce genre d'évidences sont bonnes à dire.

Pour moi, tu as toujours été un collègue bien agréable et j'aprécie de garder le lien au moins via ta participation au Macintosh Alpes Club. Je sais que tu ne manques ni de projets ni d'activités alors je ne m'inquiète pas pour toi.

Amitiés,

Alain Filhol

Je suis très heureux d'écrire ces quelques mots en ton honneur.

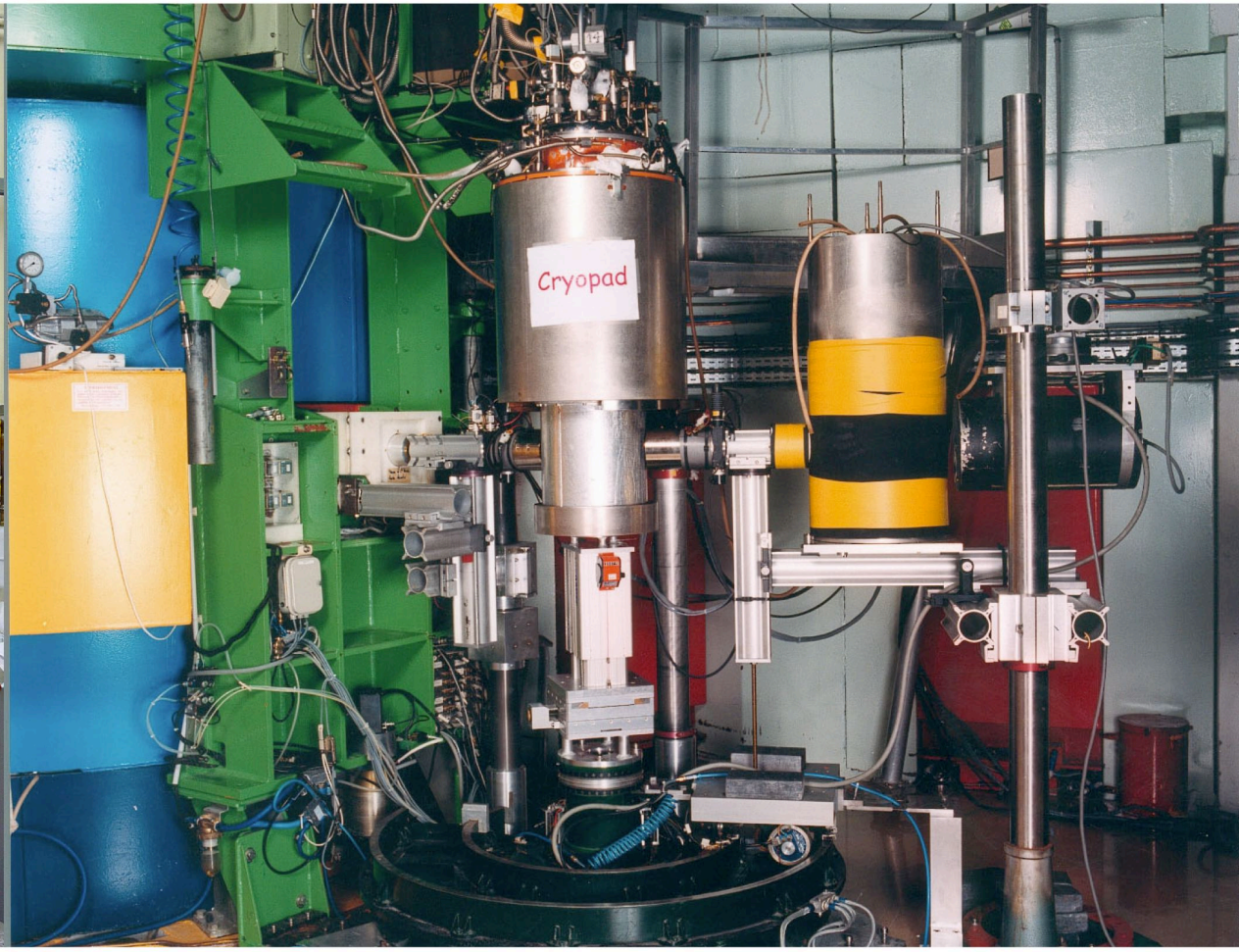
Je voudrais te remercier pour les années que nous avons passées à travailler ensemble. Une pensée toute particulière pour notre première rencontre au CNRS-Grenoble en 1995 où j'ai instantanément été séduit par la passion énorme et débordante que tu avais pour tes Cryopads et plus largement pour les neutrons polarisés.

J'ai, tu l'as compris, été très rapidement polarisé ! Je tenais également à te remercier profondément pour la patience dont tu as fait preuve envers moi et de tout le savoir que tu m'as communiqué. Très cher Francis, je te souhaite à toi et à toute ta famille de très bonnes et très heureuses prochaines années.

Tu resteras à tout jamais une rencontre très importante de ma vie professionnelle.

Très amicalement,

Eric Bourgeat-Lami



1999 - Birth of Cryopol for using 3He cells in the stray field environment of cryomagnets.
A spin analysis option using spin filters is also tested on D3 with Cryopad-II.

Je n'ai pas eu beaucoup d'occasions de maniper avec toi avec les neutrons polarisés dans mon étape à l'ILL mais en tout cas on a eu une infinité de moments ensemble dans les différents meetings, écoles et conférences et je peux dire qu'il a toujours été un plaisir de partager les différents points de vue dans les discussions scientifiques (et aussi de la vie quotidienne) avec toi.
J'espère que dans ta retraite tu as deja trouvé une bonne activité, rien à voir avec les polariseurs de neutrons, pour ne pas t'ennuyer. Je te souhaite une bonne continuation.

Amitiés

Javier Campo

You were always opened to new ideas like solid state thin film flipper and correction elements. Also you supported the idea of new magnetic focussing technique like hexapole.
We will always remember the warm welcome of researchers during your leadership of the European Polarisation Project.

Thank you very much.

Gyula Török

Un grand merci, Francis, pour ces quelques années de travail passées à tes côtés, qui ont été passionnantes. La construction de Tyrex m'a enthousiasmé par son défi mais aussi par la vision de ce que cette machine apporterait à l'ILL.

Je te remercie pour la patience que tu as eue pour m'apprendre et me transmettre des connaissances dans ce domaine qui m'était inconnu, et je me souviendrai toujours de ces longues heures de discussions passionnantes.

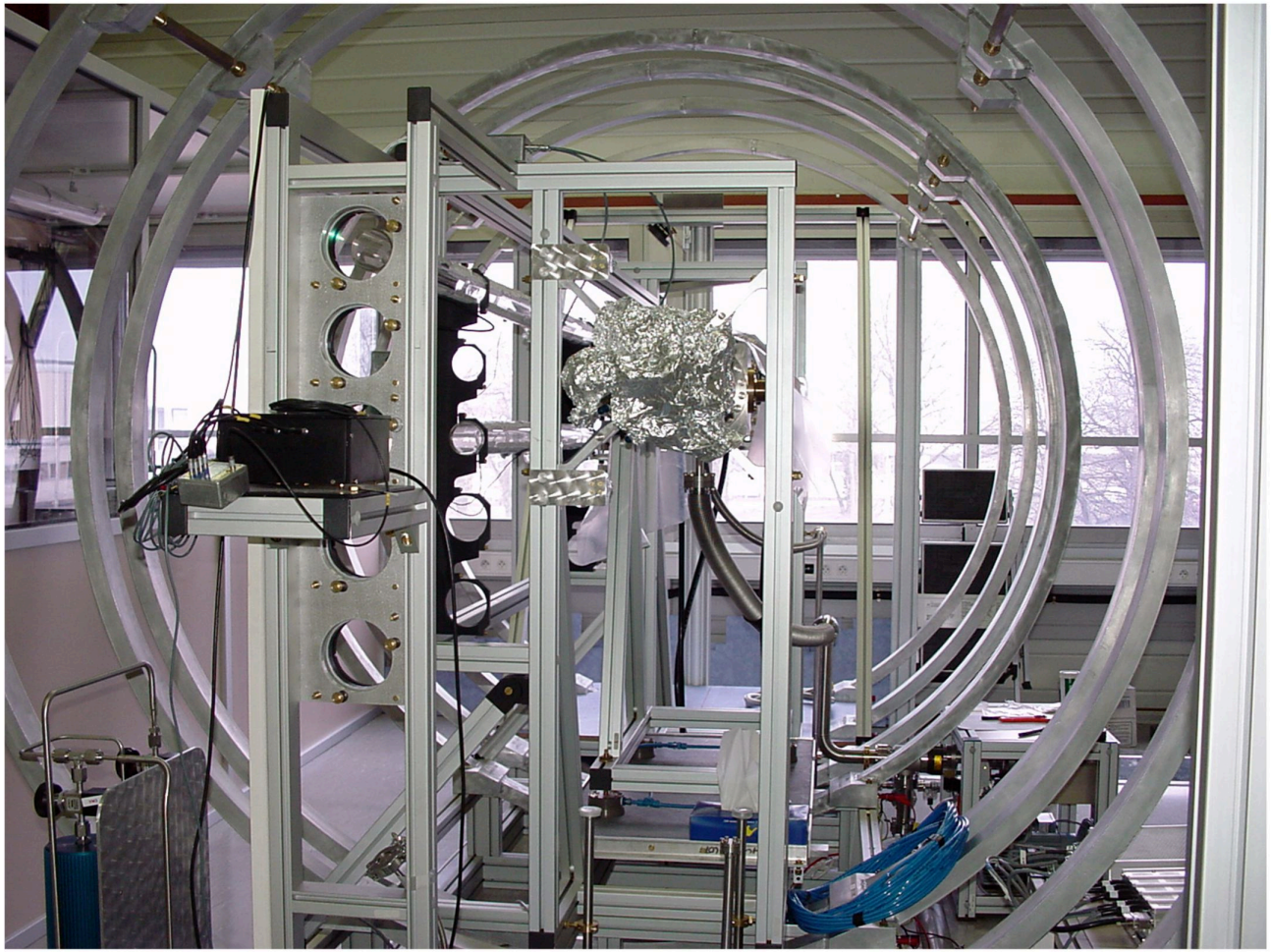
Je te remercie également pour ta gentillesse et ton énergie qui ont fait de ces années un plaisir de travailler avec toi.

Je te souhaite une très bonne retraite et beaucoup de joie avec tes petits-enfants.

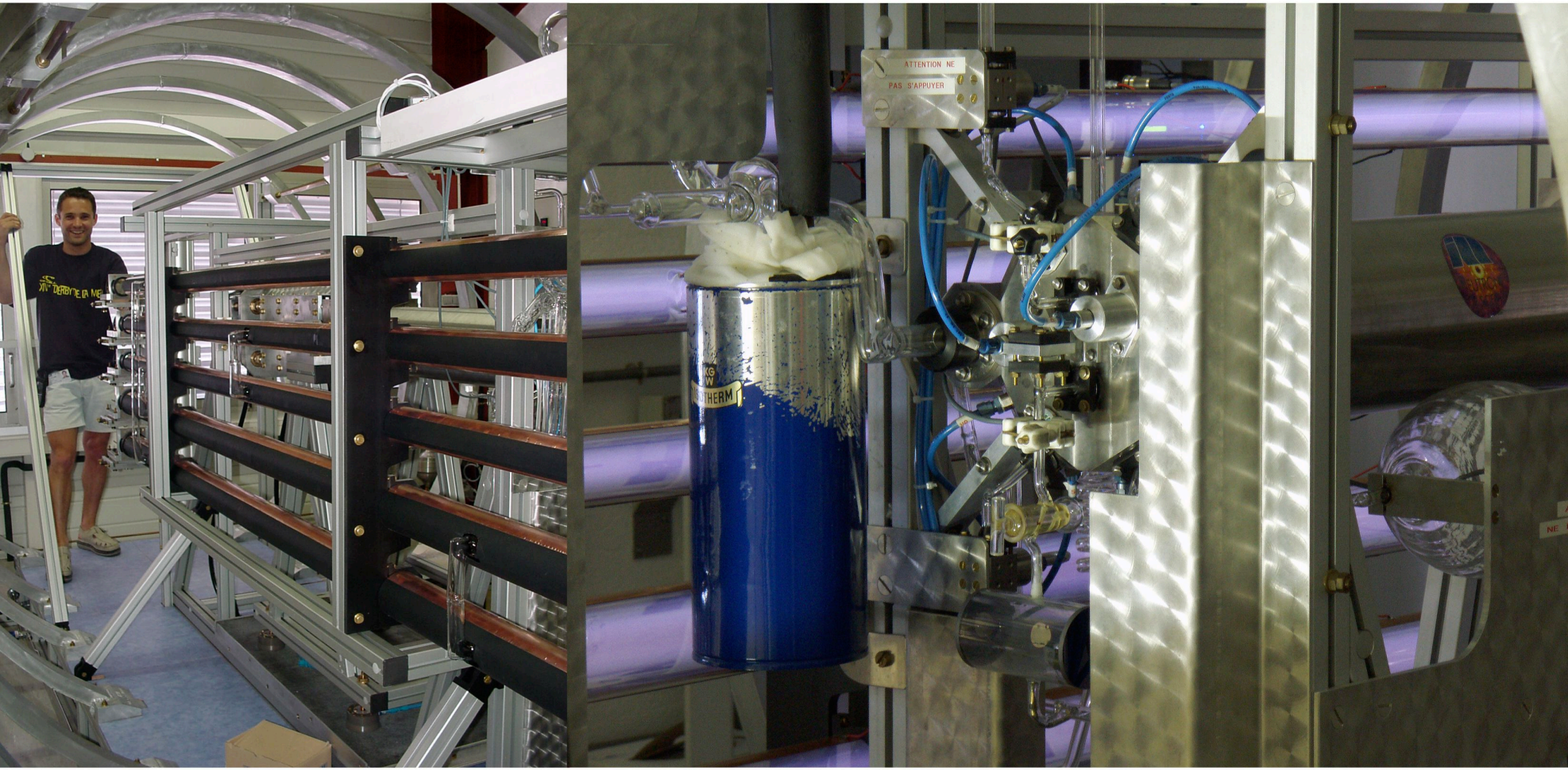
David Jullien

Your contributions to science will be long remembered, as will the splendid work you did for the ILL over all those years. May your next decades be as enjoyable and as fruitful, in whatever sphere you choose. And may global warming be kept at bay in our snowy mountains.

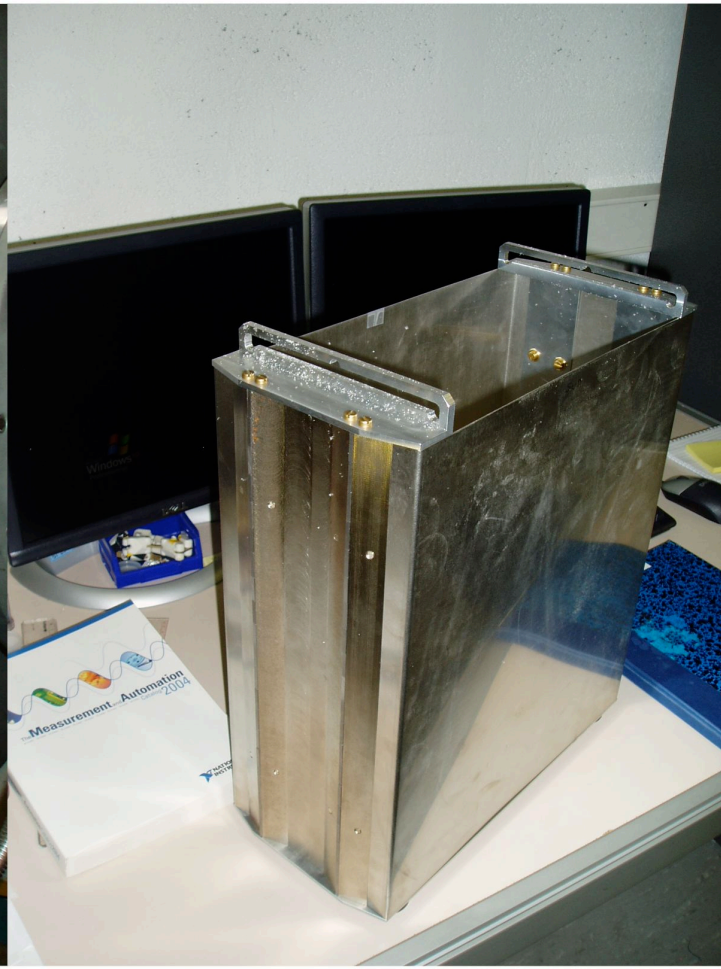
Sax Mason



2000 / 2002 - Construction of the second generation filling station Tyrex.
The British Associate finances the project.



2002 - David Jullien can be proud of his work.



2005 - Who said that it is difficult to transport polarised 3He?
Everything looks magic, once designed and built in a professional manner!

It is with sadness that I will miss this symposium in your honour, but you are unfortunately clashing with some of the arrangements for my rapidly approaching marriage.

It was a great pleasure to work with you during my time at the ILL and in many following experiments and conferences. Your enthusiasm for all things 'neutronique', energy (you put me to shame!), and kindness are fondly missed. It would have been a delight to hear about many of the wonderful adventures during your career, and the interesting finds that prove so distracting they end up taking over an entire career.

I raise a glass in your honour. Santé !
With best wishes

Andrew Wills

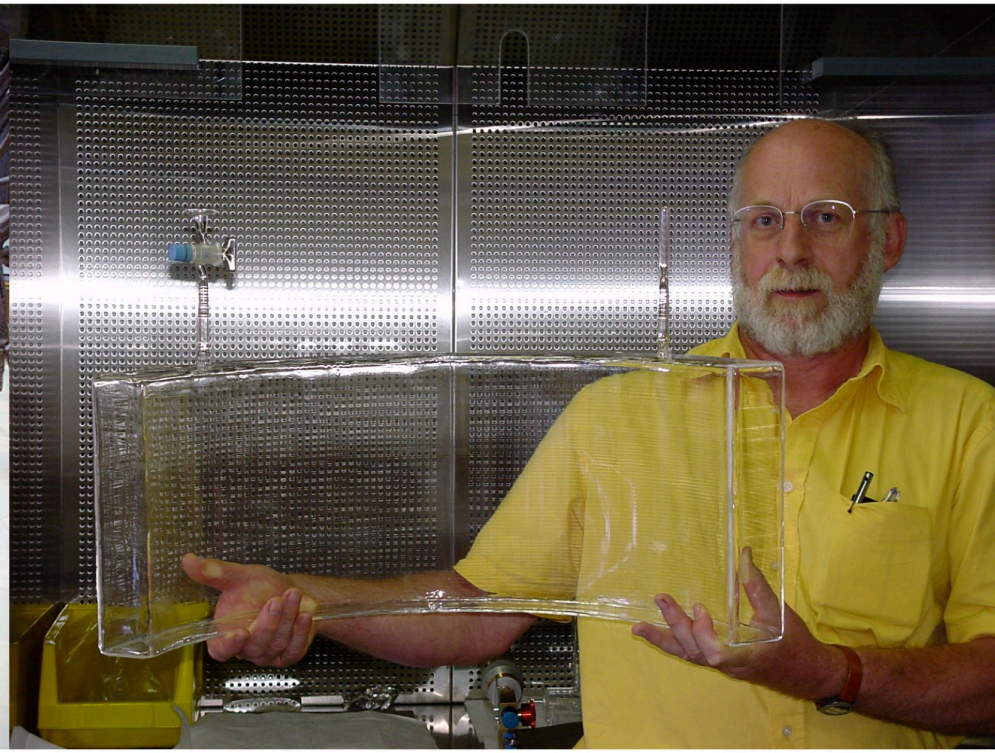
Owing to successful application of polarised 3He neutron spin filters in neutron polarisation analysis at ILL, this technique has become firmly established as very useful tool in neutron instrumentation. This initiated FRM II to make a serious effort to organise such development at the site. Now FRM II operates HELIOS, the facility for a large-scale production of a polarised 3He gas and 3He neutron spin filters extend essentially the capability of polarisation analysis at neutron instruments. We are very grateful to Dr. Tasset for his many-years efforts to make polarisation analysis a powerful tool in neutron scattering research.

Sergey Masalovich

When I think of ILL, which I do often, I realise that it is people like you, Francis, who have made it such a success, pursuing ideas which require years of dedication and determination. Cryopad is such a lovely device and such a lovely idea, and it was always such an enjoyment to visit Tyranno-saurus rex and see how the helium-3 was polarised, a tribute to the foundations which you laid. I think that such an animal would polarise most things, me certainly. By the way, I always insist on spelling polarised neutrons with an 's' and not polarized neutrons.
Watch out for the dinosaurs, there are still quite a few roaming the streets...

My best wishes to you, your wife (and the dentist in your family - plenty of toothy opportunies with Tyrex I see). And thanks, many of them.

Colin Carlile



2002 - Tyrex delivers 70% polarised 3He to instruments.
The worldwide record is renewed a few years later with 80% polarisation.

Après bien des années depuis mon départ de l'ILL tu restes en ma mémoire et en mon coeur de bien des façons.
Expérimentateur passionné, ce n'était pas une situation facile, dans un contexte de recherche français, où la physique était fortement dominée par les idées et théories.
Non seulement tu es passionné, mais aussi obstiné (les deux allant peut être de pair). Que de combats il t'a fallu mener pour mener à terme des projets aux limites.
Rendre accessibles et fiables les équipements les plus complexes, transmettre les connaissances acquises, c'était ce que plusieurs d'entre nous avions à coeur à l'ILL.
Tu as aussi eu le souci de former de nouvelles générations. Il y a eu aujourd'hui un débat sur les enseignants- chercheurs, à ta façon tu es bien un chercheur enseignant, un chercheur qui a toujours cherché à transmettre sa quête de la Vérité.
Un symposium, c'est comme un bilan, un bouquet que l'on rassemble. La vie elle, sème et multiple. Que tout cela puisse porter du fruit, des fruits nouveaux et inattendus.

de tout coeur

Pierre Chieux

It was a pleasure working with you - one of the true "grand old men" of polarised neutrons!

Tous mes meilleurs voeux,

Ken Andersen

Cher Francis,

Je te souhaite une heureuse et active retraite, et beaucoup de nouveaux projets dans lesquels tu t'investiras sans doute, là aussi, à fond à fond.....
Ton implication passionnée dans ta vie professionnelle a sans doute fortement marqué ton entourage, famille et amis..... Je te souhaite aujord'hui de partager avec eux d'autres aventures où ton dynamisme et ton esprit de créatvité trouveront de nouveaux moyens d'expression.

A bientot j'espère... Et en attendant, grosses bises à Marie Eglé et toi même.

Amitiés

Françoise Leclercq Hugeux

La société Française de la Neutronique souhaite s'associer à cette journée en hommage à Francis Tasset

Depuis le début, Francis a participé à la structuration de notre communauté réunissant professionnels et utilisateurs des techniques neutroniques . Il a été fidèle à nos rencontres "Rossat Mignod". Rappellons plus particulièrement son investissement dans l'Ecole "Neutrons et Magnétisme " (JDN9 en 2000 - Colleville sur Mer), dans l'évaluation du transport des techniques instrumentales sur Source à spallation, TRESSES en 2001 , et plus récemment dans l'Ecole "Neutrons Polarisés"(JDN13 en 2005 - Anglet). Francis ton apport à la polarimétrie neutronique a été célébré. On se souviendra en outre de la passion qui t'animait dans les discussions qui pouvaient ouvrir sur des mises au point de spécialistes: ta fougue n'avait d'égale que ton investissement personnel dans les techniques instrumentales d'analyse de polarisation en 3 dimensions.

Lors de la réunion d'anglet , les organisateurs de l'Ecole "Neutrons Polarisés" et la SFN avaient souhaité fêter particulièrement le trio des Neutrons Polarisés "Jane Brown, Jacques Schweizer et Francis Tasset"

Ci après souvenir en photos de ce coup de chapeau à Francis et à ses 2 collaborateurs de longue date.

Pour la SFN,

Françoise Leclercq Hugeux

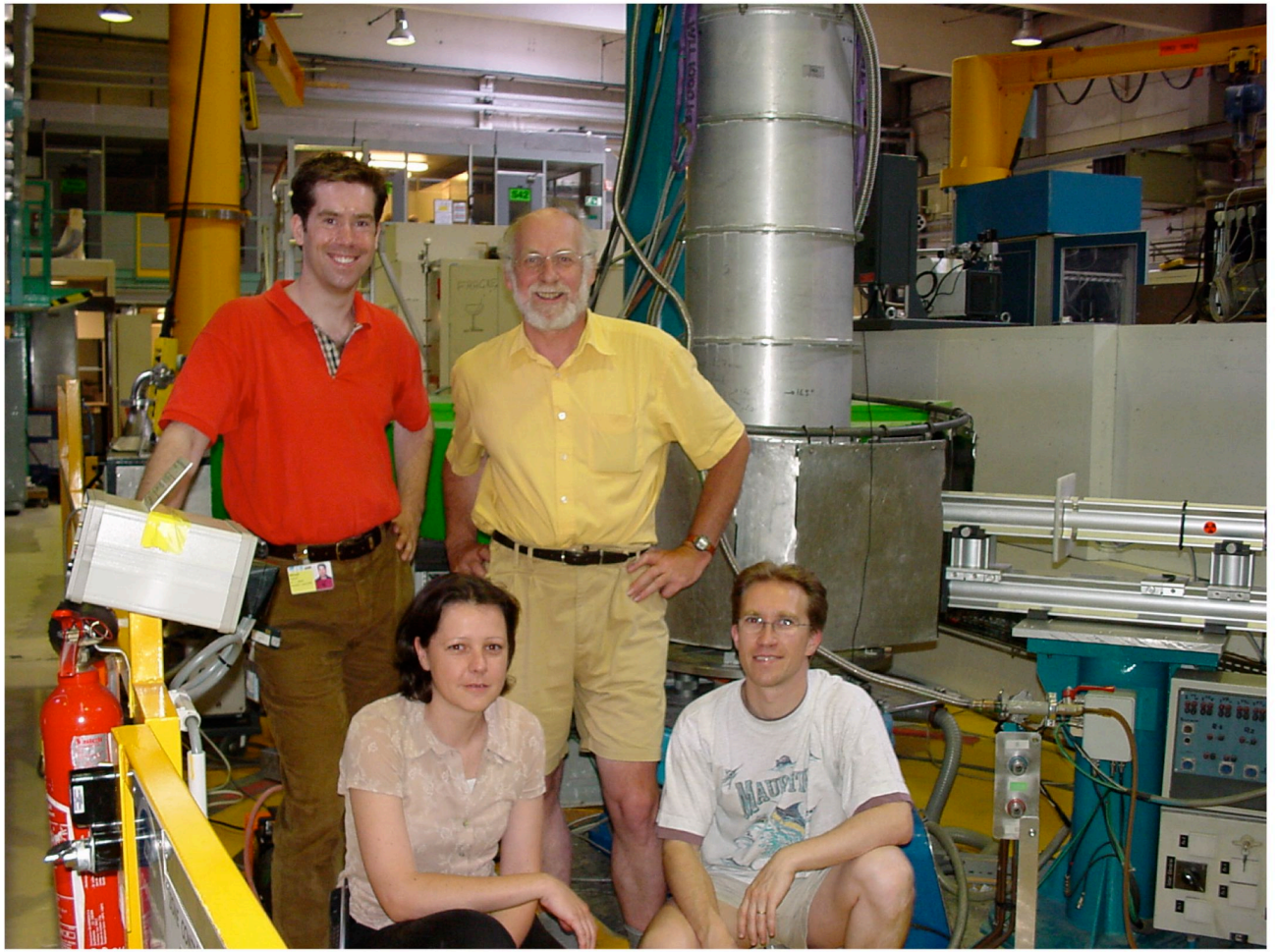
My warmest congratulations on your retirement and for the many achievements of your career. Although I chose not to continue with a scientific career, I am still very pleased to see how the techniques you developed continue to flourish. Your contributions to neutron scattering are plainly considerable...

I have fond memories of the work we did together and am very grateful for everything that you taught me as a student and post-doc. I also greatly appreciate the kindness and support that both you and your family gave me during my time in Grenoble. This made it much easier for an inexperienced young graduate student to adjust to life in a new country!

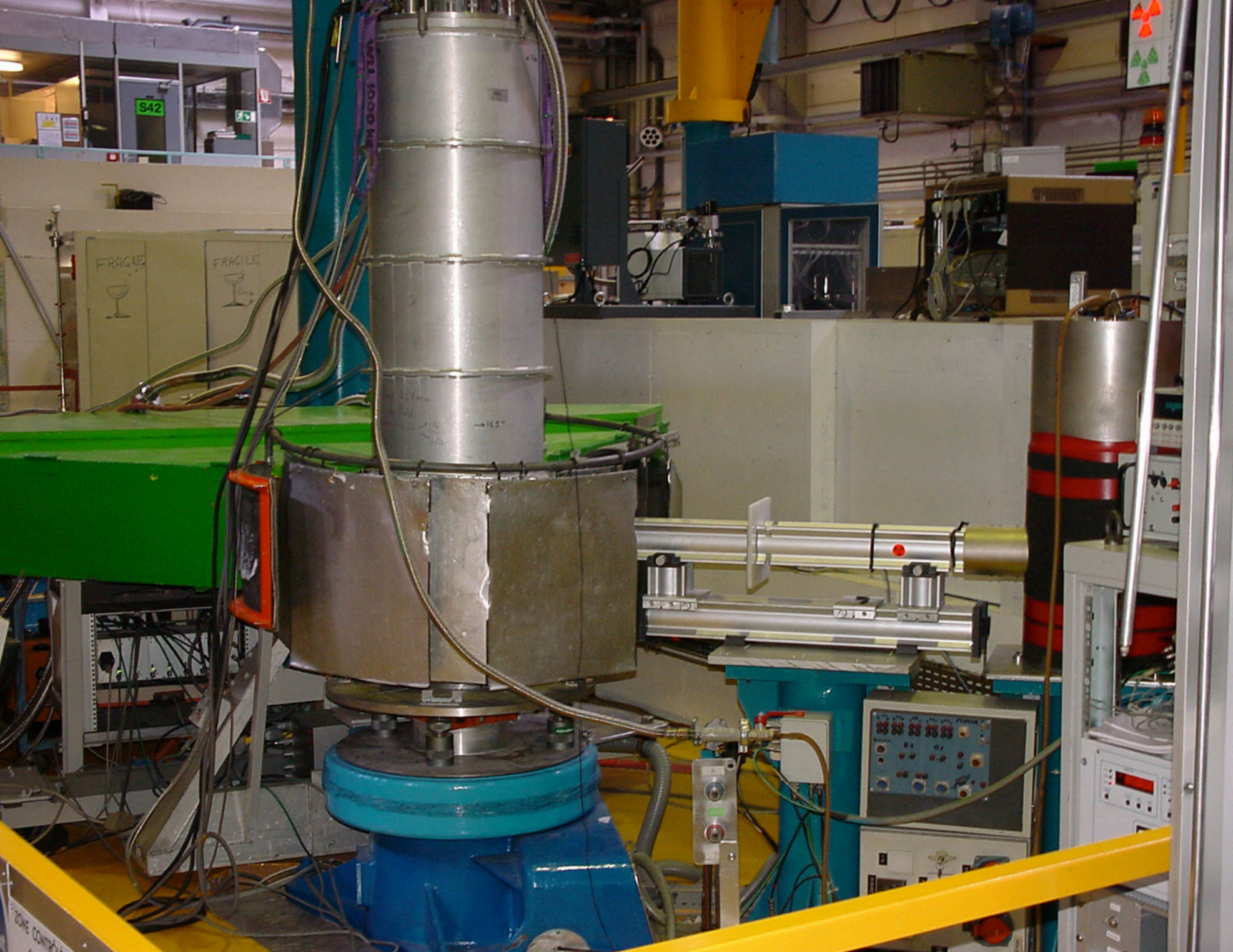
I would like to wish you the very best for the future and very much hope to keep in touch.

Best regards,

Trefor Roberts



2003 - First and successful powder diffraction experiment with a neutron spin filter on D1B.
(Andrew Wills, Francis Tasset, Nolwenn Kernavanois and Eddy Lelièvre-Berna)


S42
FRAGILE
FRAGILE

My 5 years at the ILL were memorable for many reasons, and most importantly for the people with whom I worked and played.
You are one of those whose passion for science and dedication to excellence were uncompromising and provided a shining beacon of inspiration to others.
In addition, it was always a pleasure to work with you - and sometimes also a challenge - and I am proud to have known you as a colleague and a friend.
May you have as rewarding and happy a retirement as I have experienced during the last ten years!
With all good wishes for the future,

Alan Leadbetter

Your perseverence in transforming ideas to reality, and your free-thinking and pioneering spirit is an inspiration to us all.

Your contribution to ILL, and the much wider community of neutron scatterers has been tremendous, and you will always find a welcome among us.
With best wishes,

Andrew Harrison

Tu as énormément contribué à l'utilisation des neutrons polarisés. J'ai toujours admiré ta motivation et l'immense travail accompli qui ont abouti à d'excellents résultats - Cryopad et la polarisation de neutrons avec He3 polarisé sont des exemples. Très important pour la recherche !
Excuse notre faute commise dans les "opportunities".
J'ai estimé également ta personalité et ton rôle à l'intérieur de la DPT (2002-6) : dans les réunions et ailleurs, tu as fourni un élément de continuité et de stabilité - ce qui n'a pas empêché des petites éruptions de ton tempérament. En plus, tu es un ami qui nous a montré les secrets du Vercors, y compris des endroits cachés plein d'edelweiss.

Toute mon admiration et mes meilleurs voeux pour ton avenir,

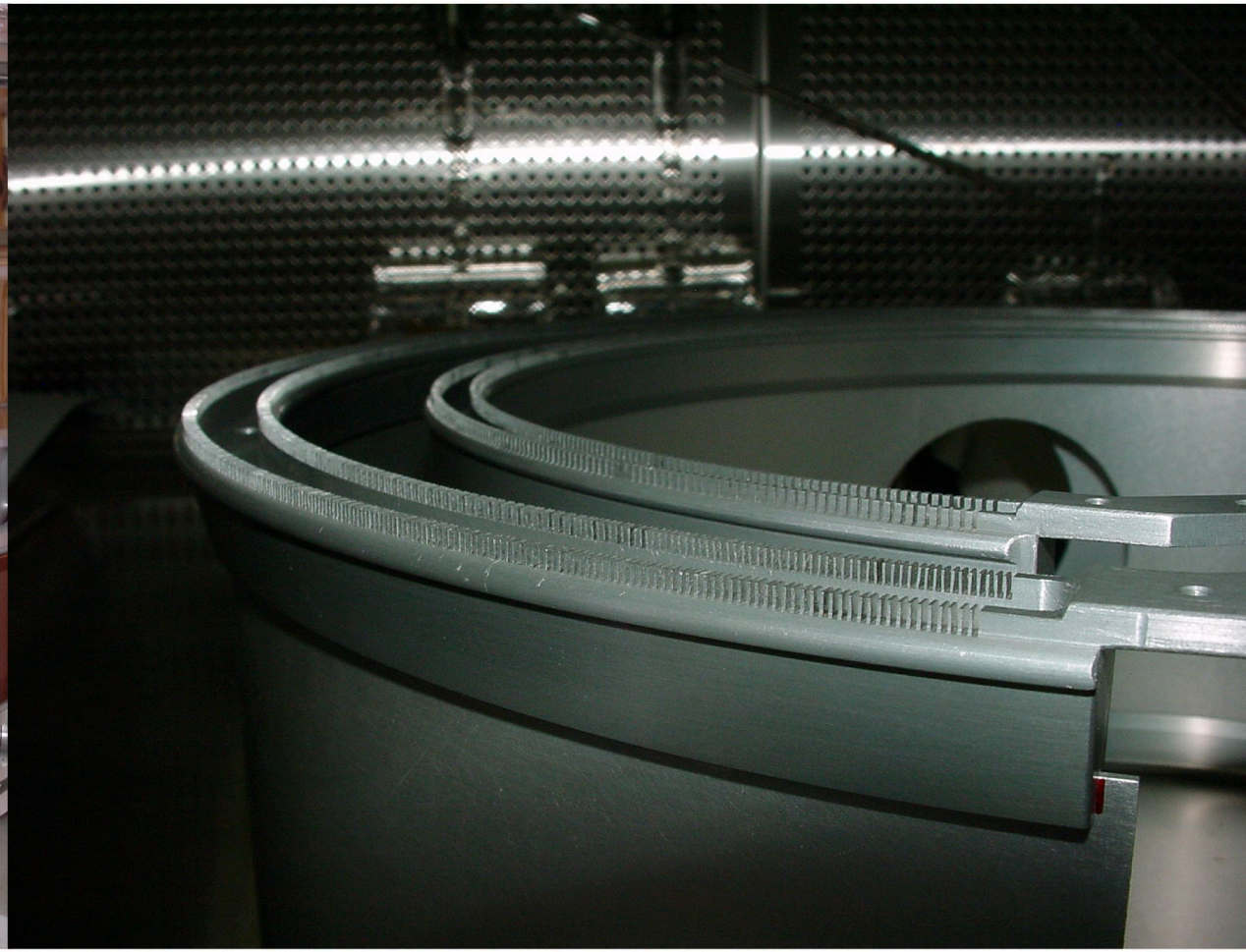
Amitiés

Werner Press

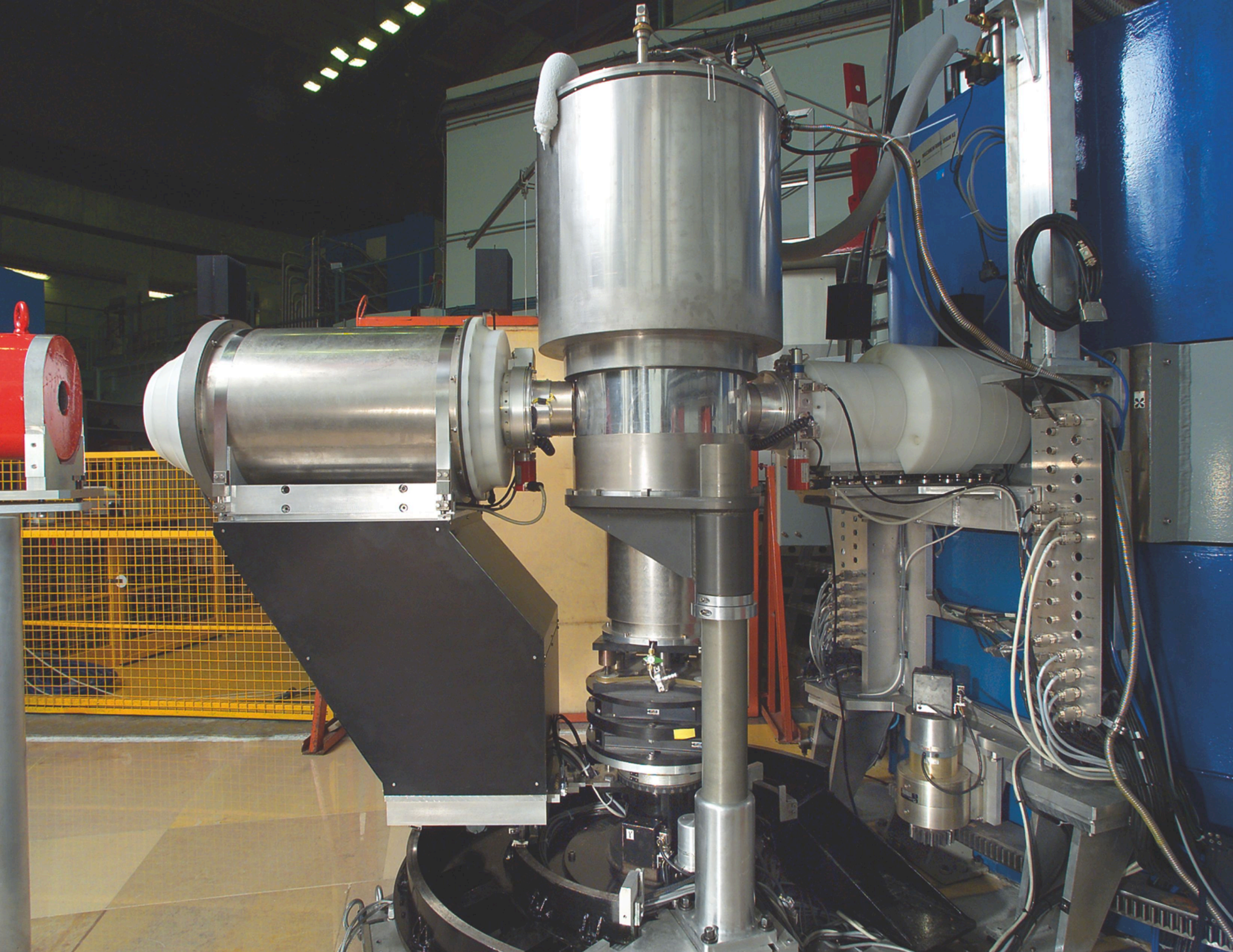
You are the Clever, Reliable, Youthful, Overpowering, Perfect and Attractive Dad of CRYOPAD !

With very best wishes,

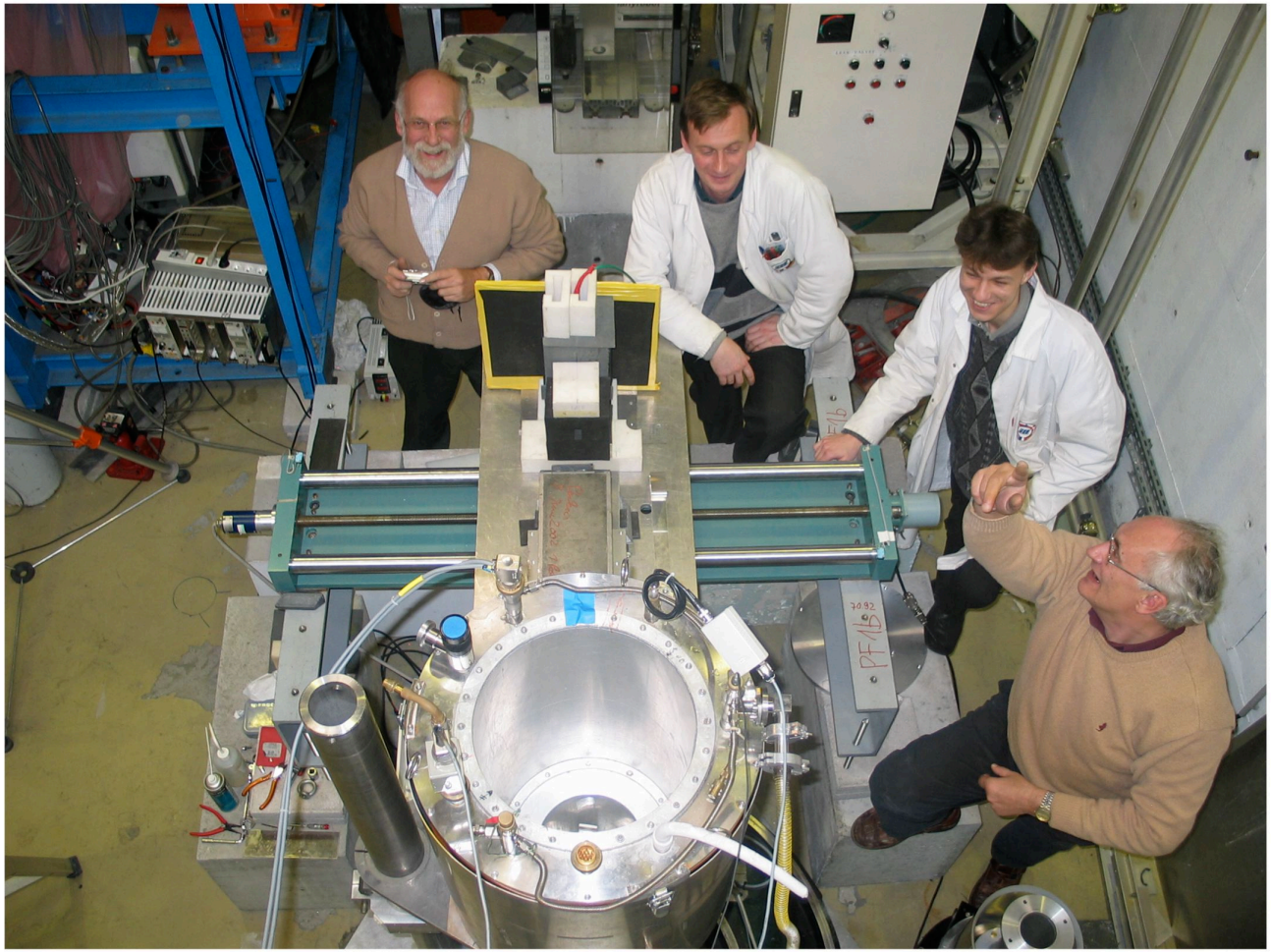
Masayasu Takeda



2003 - Eric Bourgeat-Lami mounts 3 copies of the third-generation Cryopad for CEA, ILL and JAEA.
A fourth one will be delivered to TU-Aachen at FRM II in 2009.



2004 - PND and SNP at a glance on D3.
A modern, reliable, automated and modular polarised neutron facility for ILL users.



2003 - First attempt to measure the electric dipole moment of the neutron.
(Francis Tasset, Vladimir Voronin, Sergey Semenikhin, Alexander Petukhov)

Many years ago, when I knew even less about polarised neutrons than I do today, I aggressively pushed for polarisation analysis to be installed on three axis machines at ILL. Although you must have known that much of my enthusiasm was based in ignorance, you were always unfailingly kind and willing to share your own knowledge. It was a level of grace to which we should all aspire. I am pleased that your capstone project - delivering on the promise of polarised helium - has been so successful worldwide. It is a success and a legacy you richly deserve.

With my best wishes for a successful retirement and continued scientific curiosity.

Roger Pynn

Je voulais te remercier pour tout ce que tu as fait pour l'ILL, en particulier tout ce qui touche aux neutrons polarisés, bien que je ne suis pas un utilisateur régulier. Je voulais aussi te remercier pour ta gentillesse et ta disponibilité.
Je te souhaite bonne chance et surtout une bonne santé et aussi beaucoup de bonnes choses.

Merci,

Bachir Ouladdiaf

C'est (F) Tasset:

A ses débuts, il a fait le CENG. La DN était dans ses gènes. Il l'aimait l'usine, même si l'eau était bleue. A force de cris au PAD (et quelques CRYOPOL, mais pas trop de cris au Jacques!), IL L'a réalisé. D3, il s'est fait plus large. Certes, il y eu quelques NMI, mais quand même beaucoup d'amis. Avec peine, aussi, on a fait l'INS. Puis il en eut assez des idées et arrêta ses projets.
Francis, pour moi tu resteras toujours mon meilleur polari Maître!

Merci pour tout ce que tu as fait pour nous.

Louis-Pierre Regnault

J'ai été très heureux de te côtoyer durant quelques années à l'occasion de contrats Européens. Cela m'a permis de rentrer dans le monde de l'instrumentation neutronique et de découvrir que de nombreuses choses nouvelles pouvaient encore être faites.

J'espère pouvoir suivre ton exemple.
Félicitations pour ta carrière.

Frédéric Ott

2003 - Francis Tasset and Louis-Pierre Regnault carry out
the first inelastic neutron scattering experiments with Cryopad-III.

Thank you for your kind cooperation in introducing the Cryopadum to JRR-3. Thanks to you & Eddy, we have now an operating Cryopad on TAS-1. We hope that this fruitful collaboration will be continued under the new MoU between JAEA and ILL in neutron science. **Kazu Kakurai**

It may be not a surprise that your name was first known to me from publications. I remember my first fascination by diffraction on fluxoid lattice in niobium, still in my high-school time. Later the new words as zero-field polarimetry with Cryopad and then He3 spin-filter came up from conferences in late 80's and early 90's. That was astonishing and much instructive to me - great new devices are thought out and are being built without any fear (may be).

Later at ILL, I witnessed the increase in the performance of these and other "polarising" new instruments and even tried to use some of them, profiting from - now direct - contacts with you. Your name is now "tightly bound" to the neutron polarisation analysis, with now familiar benchmarking ideas and realisations.

We should be all thankful to you that your enthusiasm and energy created new knowledge, opened new horizons and made accessible new ways in research.

Thank you Francis!

Alexander Ivanov

Je ne sais plus quand je t'ai rencontré pour la première fois: c' était certainement par l' intermédiaire de Feri. Nous avions fait une expérience sur D3 et nous y avions passé des jours, des nuits et tout un week end.

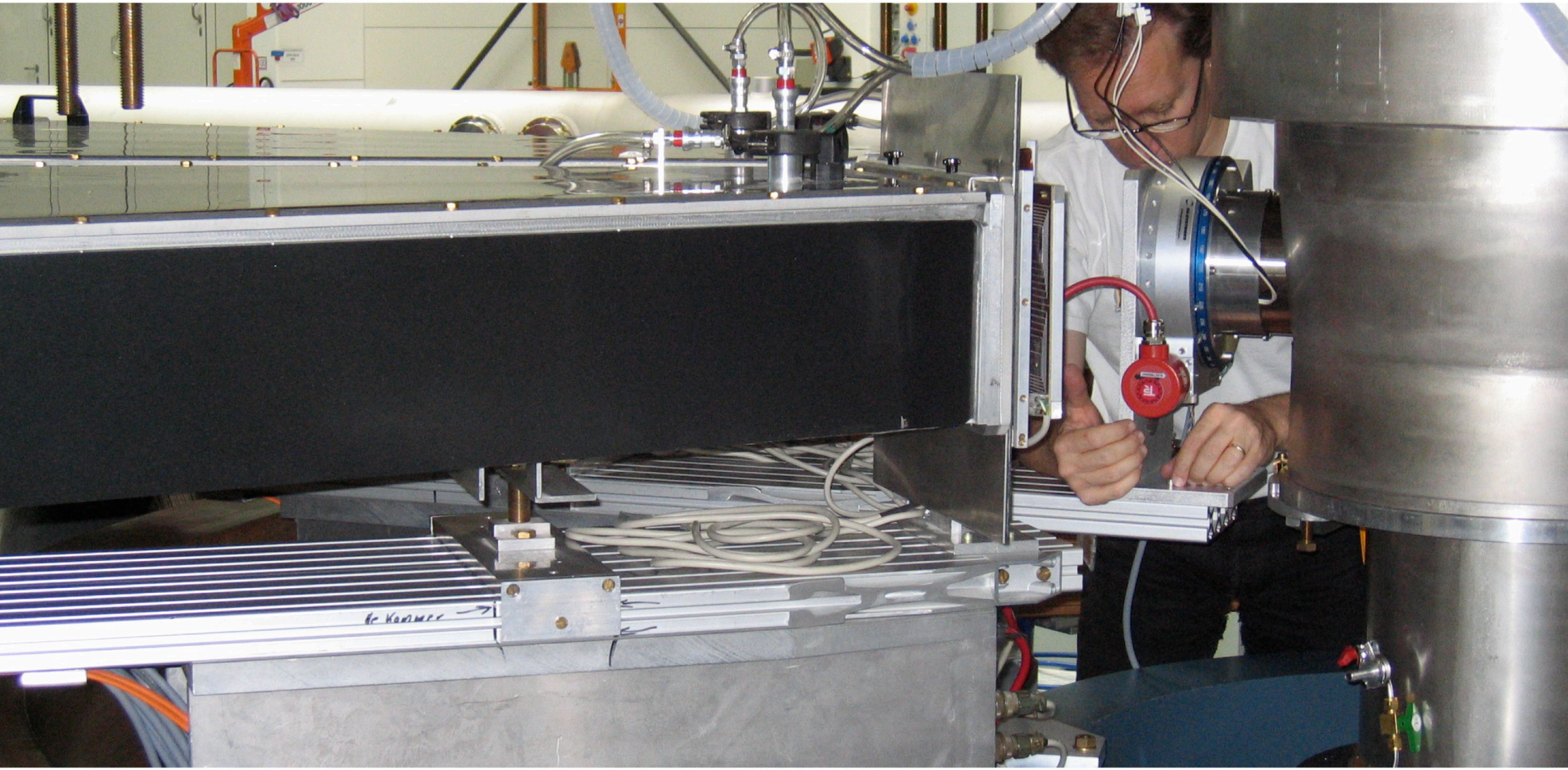
Que puis-je dire de toi ? Tu as beaucoup apporté aux neutrons polarisés, tu es un combatant qui a toujours suivi ton chemin sans concession aux idées reçues.

J'ai toujours eu du plaisir à discuter avec toi et j'ai beaucoup appris de toi. Je garde des beaux souvenirs d'un workshop au lac Balaton, des PNCMIs, d'un concert à Berlin, de ta maison dans le Vercors et ...last but not least... des discussions sur les neutrons polarisés: est-ce que le spin-echo et les techniques de Larmor font partie des neutrons polarisés ??? Ce n'est pas clair et on peut en discuter à batons rompus pendant des heures...

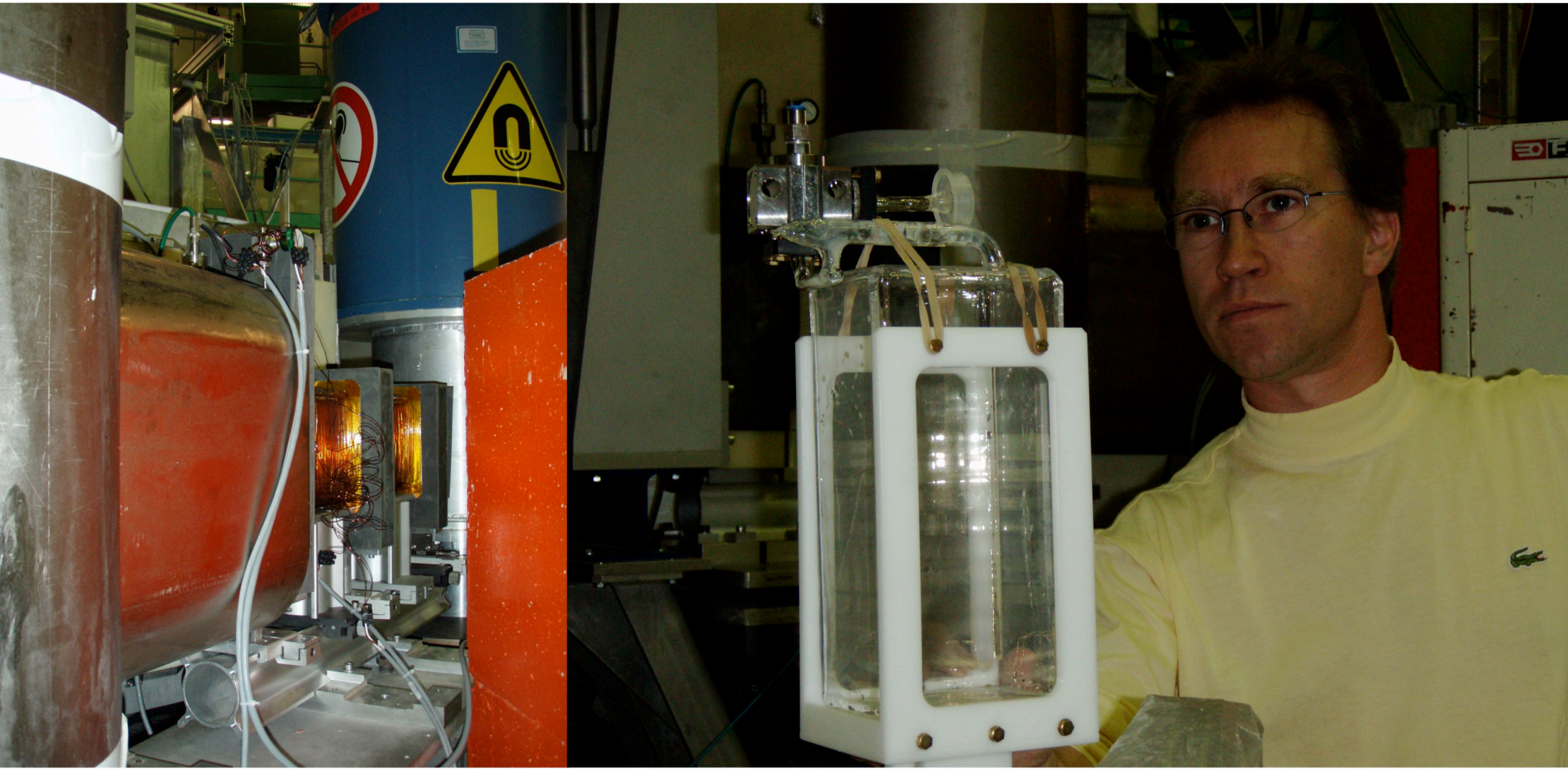
Bises,

Catherine Pappas

2007 - Catherine Pappas and Eddy Lelièvre-Berna install Cryopad-III
on the Spin-Echo Spectrometer SPAN at the Hahn-Meitner Institute.



After many long nights tuning the equipments,
the Polarimetric Neutron Spin-Echo technique was born.



2008 - The new cryogen-free Cryopol is routinely used on D20 to investigate nanoscale samples. Eddy Lelièvre-Berna depolarises the world's biggest spin filter cell to calibrate the diffractometer.

Brief historical account

After the construction of the high-flux reactor of the Institut Laue Langevin (ILL), a series of advances occurred in Europe. P.J. Brown and J.B. Forsyth discovered that the (111) reflection of the Heusler alloy Cu2MnAl is a better candidate for polarising a neutron beam, and the production of good single crystals was undertaken successfully by the CEA-Grenoble, the CNRS and the ILL.

In the early 1970s, J. Schweizer and F. Tasset were in charge of the construction of a polarised neutron triple-axis spectrometer of the first generation, and a few years later, P.J. Brown and J.B. Forsyth built a diffactometer dedicated to the determination of magnetisation distributions.

At the beginning, the flipping system was of the type proposed by C.G. Shull: a Larmor frequency coil in a magnetic field. F. Mezei brought from Budapest a second type of flipper (Mezei flipper) which consists of a rectangular coil into which the polarisation precesses around the field. There is no frequency to tune but it is still wavelength and stray field dependent. F. Tasset proposed a third type of flipper (Cryoflipper) which is made of two opposite fields separated by a thin Meissner sheet: the field changes sign very abruptly and there is no wavelength and stray field dependency.

F. Mezei demonstrated in 1972 that by the Spin Echo method, very small velocity changes could be observed independently of the velocity spread. He also had the idea of supermirrors and pointed out the idea of a generalised polarisation analysis. With the successful development of supermirrors at the ILL, O. Schaerpf reconstructed in 1992 the diffuse scattering instrument D7 in order to accommodate polarisation analysis. The trick here was to use a triple Helmholtz coil at the sample position to bring the incident polarisation along any of the three directions X, Y or Z, and to analyse the scattered beam in the same direction (XYZ Method or three-directional polarisation analysis). From the measured six cross-sections, one can separate the nuclear, nuclear spin incoherent and magnetic contributions. This is a generalisation of the technique discovered in 1969 by R.M. Moon, T. Riste, and W.C. Koehler (one-directional polarisation analysis).

Following the pioneering experiment of H. Alperin who demonstrated in 1973 that the generalised or three-dimensional polarisation analysis could be realised by connecting two different guide-field directions onto a zero-field sample chamber, F. Tasset built in 1989 an apparatus at the ILL to

determine the direction of the scattered polarisation vector for any given incident polarisation and any scattering angle. Using his expertise with superconducting screens developed when building the Cryoflipper and in spite of very little support, he constructed a compact Cryogenic Polarisation Analysis Device (Cryopad) which takes advantage of the Meissner shields to properly define the magnetic field and zero-field regions crossed by the incident and scattered neutron beams.

For the first time, all the components of the complicated expression of the scattered polarisation vector could be measured at any scattering angle, which immediately provided unique information on magnetic structures. The first experiments performed with P.J. Brown and J.B. Forsyth were very successful and motivated F. Tasset to pursue the development.

F. Tasset proposed to call the technique Spherical Neutron Polarimetry (SNP) so that no confusion is made with the technique introduced at Oak Ridge by R.M. Moon, T. Riste, and W.C. Koehler.

In 1996, F. Tasset constructed a second-generation Cryopad allowing the polarisation vector of the incident beam of neutrons to be set in any direction and the magnitude and direction of the scattered polarisation vector to be measured to a precision of 3 degrees for any given momentum transfer. The results were presented to the scientific community at the PNCMI international workshop organised at ILL in 1998 and the Spherical Neutron Polarimetry technique was finally recognised by the experts.

About 5 years later, three copies of a third-generation Cryopad had been constructed and implemented at ILL and JAEA . A non-cryogenic version called MuPAD was also constructed at FRM II by R. Gähler, M. Janoscheck et al. This version is less precise and less reliable but helped people understand the benefit of Meissner screens.

Indisputably, F. Tasset has contributed a lot to the adoption of the vectorial property of the neutron polarisation. Today, ILL builds a fourth copy of Cryopad for TU-Aachen (FRM II) and discussions have started with HMI for a fifth unit.

These zero-field polarimeters are used to investigate complex magnetic structures, measure magnetisation distributions of antiferromagnets, parity-violation effects and even the neutron electric dipole moment. Recently, E. Lelièvre-Berna and C. Pappas have also applied SNP to

neutron spin echo spectroscopy (Polarimetric Neutron Spin Echo). Only with this technique was it possible to reveal unambiguously the existence of a new type of magnetic phase in MnSi featuring chiral fluctuations.

Because of the low intensity available on polarised neutron instruments, the search for new methods for polarising neutron beams has always been active. The use of gaseous 3He spin polarisers was first introduced by F. Tasset at Allevard on the 31st of August 1989 when he presented a talk entitled "The polarised 3He gas filter: a promising method for hot neutron beams" at the ILL workshop "Proposals for the 3ème souffle". The principle of this filter is based on the enormous difference in the absorption cross-sections for neutrons with spin parallel and anti-parallel, difference which exists for a very broad band of wavelengths.

In the second half of 1989, F. Tasset invited T. Chupp at ILL. Then they met at ENS and ILL for preparing an experiment for which the Scientific Committee allocated 3 weeks of beam time. In October 1990, they performed this experiment by optical pumping of Rb vapor and Rb-3He collisions at room temperature with the help of Harvard University. F. Tasset presented the results at the ICNS conference (Oxford) in 1991: the filtering of the neutron spin was becoming a reality.

After obtaining some financial support from the European Commission, F. Tasset went into a collaboration with Mainz University whereby a filling station was built for the ILL comprising the optical pumping and the compression of the gas. In this case, the gas was polarised by optical pumping of 3He atoms excited by an electric discharge at about 1 mbar and collisions of excited 3He - 3He nuclei.

In 1996, he tested successfully this new device on the diffractometer D3 at ILL. Several experiments were then very successfully carried out with up to 55% 3He polarisation.

In 2000, F. Tasset started the construction of a second-generation filling station financed by a UK/EPSRC grant (now STFC). In a few years, the maximum 3He polarisation reached 70% and the production rate were multiplied by 5. Today, this station daily supplies several instruments with spin filter cells filled with 3He gas polarised at 80%.

This new technique has been adopted by the international neutron community and the construction at ILL of new filling stations has started for neutron facilities located in UK and

Australia. F. Tasset's pioneering contributions toward the polarisation of wide-band neutron beams with 3He spin filters have changed the face of the neutron world.

Eddy Lelièvre-Berna


Q3

Symposium in Honour of Dr. Francis Tasset

Institut Laue Langevin
March 6, 2009