Chapter IV.1

The origin of JUAS, 1990–1993

Marcelle Rey-Campagnolle [a,b] *and Louis Rinolfi* [a,c]
[a] European Scientific Institute (ESI), Archamps, France
[b] ISN and CNRS, Grenoble, France (retired)
[c] CERN retired, Geneva, Switzerland

The origin of the Joint Universities Accelerator School can be traced back to a collaboration between CERN-based physicists, ESRF, and the Université Joseph Fourier in Grenoble, France, in 1990. This led to a formal collaboration with the CERN Directorate to implement a joint universities school in Archamps (France) with the support of the Haute-Savoie local authorities.

Still active in JUAS today, Louis Rinolfi was there at the very beginning, lecturing on the initial accelerator physics course, the precursor to what was to become the Joint Universities Accelerator School.

The story of JUAS starts at Université Joseph Fourier in Grenoble (France), where Prof. Fernand Merchez was in charge of the DEA (*Diplôme d'Etudes Approfondies*) *Instrumentation et Mesures* (see Fig. IV.1.1). Prof. Merchez invited eight working physicists and engineers to teach a total of 120 h of lectures and tutorials, with examinations at the end of the course. Four came from ESRF in Grenoble—Pascal Elleaume, Laurent Farvacque, Jean-Louis Laclare, and Annick Ropert—and four came from CERN (Switzerland)—Daniel Brandt, Michel Martini, Jean-Pierre Potier, and Louis Rinolfi.

The first course, taught in English, took place during 5–30 March 1990. Figure IV.1.2 shows the 16 students who attended this course, several of whom today occupy important positions in laboratories and research centres around the world. It is also interesting to mention that the Belgian company IBA sent several students to take part in this initial adventure.

In 1991, the name of the DEA was changed to *Méthodes Physiques Expérimentales*, encompassing beam instrumentation for large detectors and the physics of particle accelerators. The titles of the courses, provided from 1990, are summarised in Ref. [1]. Between 1990 and 1993, Louis Rinolfi taught three courses: longitudinal beam dynamics [2], synchrotron radiation [2, 3], and stochastic cooling [2, 4]. The reports were written in French and amounted to a total of 300 pages. Later, when Louis Rinolfi was teaching at JUAS Archamps, he wrote a new document of 72 pages dedicated to longitudinal beam dynamics [5].

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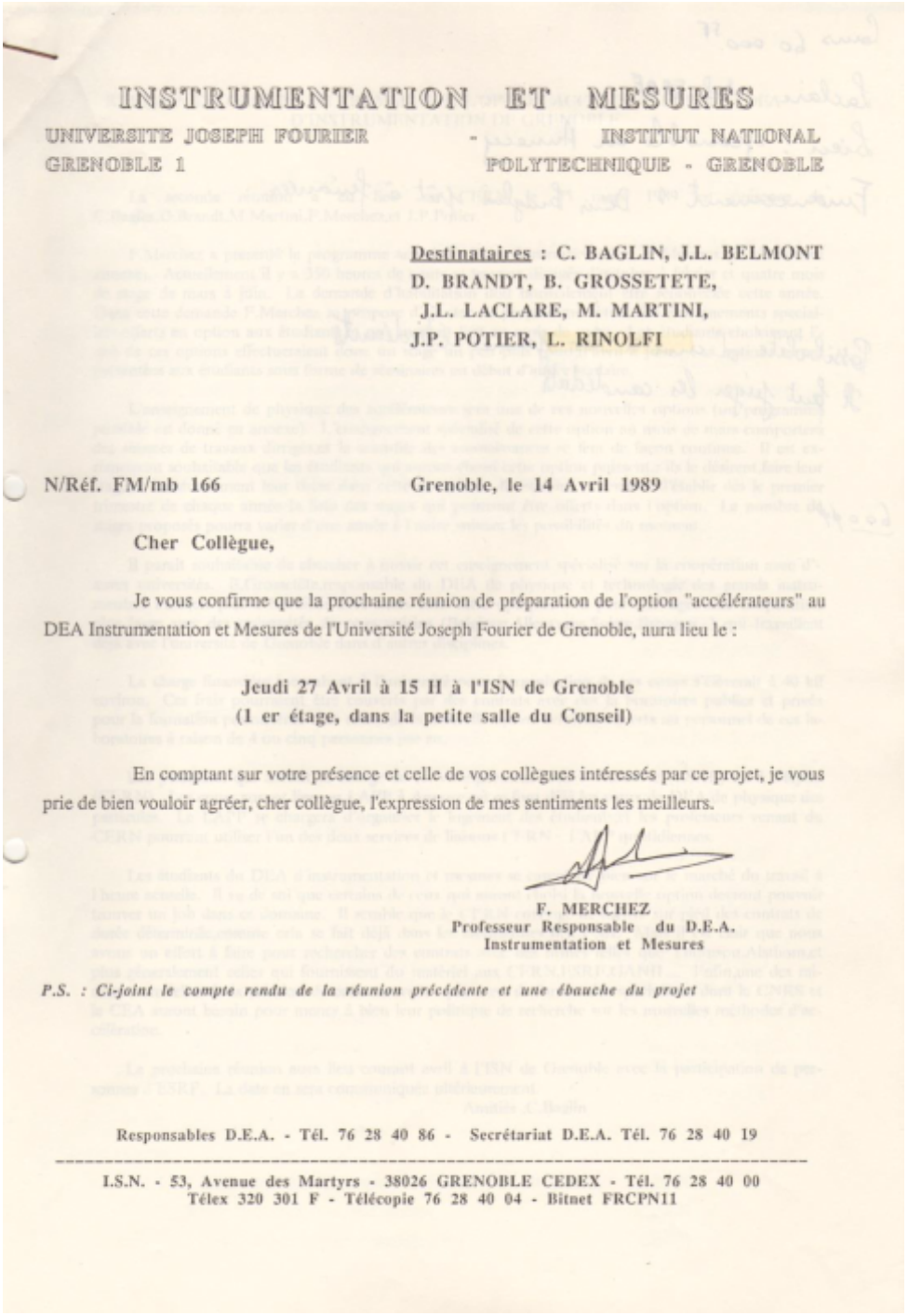


INSTRUMENTATION ET MESURES

UNIVERSITE JOSEPH FOURIER - GRENOBLE 1

INSTITUT NATIONAL POLYTECHNIQUE - GRENOBLE

Destinataires : C. BAGLIN, J.L. BELMONT
D. BRANDT, B. GROSSETETE,
J.L. LACLARE, M. MARTINI,
J.P. POTIER, L. RINOLFI

N/Réf. FM/mb 166 Grenoble, le 14 Avril 1989

Cher Collègue,

Je vous confirme que la prochaine réunion de préparation de l'option "accélérateurs" au DEA Instrumentation et Mesures de l'Université Joseph Fourier de Grenoble, aura lieu le :

Jeudi 27 Avril à 15 H à l'ISN de Grenoble
(1 er étage, dans la petite salle du Conseil)

En comptant sur votre présence et celle de vos collègues intéressés par ce projet, je vous prie de bien vouloir agréer, cher collègue, l'expression de mes sentiments les meilleurs.

F. MERCHEZ
Professeur Responsable du D.E.A.
Instrumentation et Mesures

P.S. : Ci-joint le compte rendu de la réunion précédente et une ébauche du projet

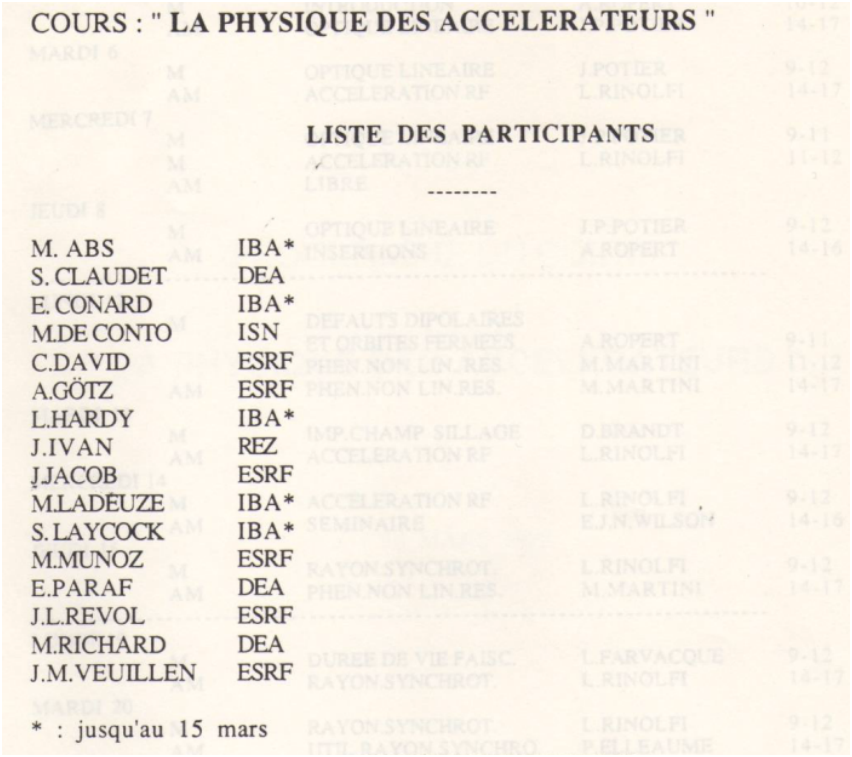
Responsables D.E.A. - Tél. 76 28 40 86 - Secrétariat D.E.A. Tél. 76 28 40 19

I.S.N. - 53, Avenue des Martyrs - 38026 GRENOBLE CEDEX - Tél. 76 28 40 00
Télex 320 301 F - Télécopie 76 28 40 04 - Bitnet FRCPN11

Fig. IV.1.1: Invitation letter to implement a new course on particle accelerators in Grenoble.

Following the creation of the Archamps business park and its campus for high-level courses in management and technology, and in the light of the successful implementation of the accelerator physics courses in Grenoble, Prof. Merchez and his colleague Prof. Jean-Pierre Longequeue from INPG[1], manifested their interest in relocating the course to Archamps. The two main reasons for this were: 1) the

[1]INPG: Institut National Polytechnique de Grenoble, now Grenoble INP.



COURS : " LA PHYSIQUE DES ACCELERATEURS "

LISTE DES PARTICIPANTS

M. ABS	IBA*
S. CLAUDET	DEA
E. CONARD	IBA*
M.DE CONTO	ISN
C.DAVID	ESRF
A.GÖTZ	ESRF
L.HARDY	IBA*
J.IVAN	REZ
J.JACOB	ESRF
M.LADEUZE	IBA*
S. LAYCOCK	IBA*
M.MUNOZ	ESRF
E.PARAF	DEA
J.L.REVOL	ESRF
M.RICHARD	DEA
J.M.VEUILLEN	ESRF

* : jusqu'au 15 mars

Fig. IV.1.2: First promotion of students who attended the new course on particle accelerators in Grenoble in March 1990.

proximity to CERN, a veritable breeding-ground for physicists and engineers working at the forefront of a host of technologies; and 2) the possibility for their students to receive a European education in a neutral European environment. They contacted their partners in CLUSTER[2], who were involved in activities at CERN and could be interested in teaching and sending students to Archamps: Politecnico di Torino (Prof. Minetti), Universität (TH) Karlsruhe (Prof. Engelhardt), and Technische Universität Darmstadt (Prof. Heinzel and Prof. Richter). A preliminary agreement was signed in 1992 between the two Grenoble establishments, Darmstadt, and Karlsruhe, fixing the framework for organising a specialised training course for students outside of their home university.

This course was to cover accelerator technologies and would be addressed to students in their fourth to fifth year of a physics/engineering degree. The course would last two to three months (starting in January), followed by three months of practical experience. A committee formed with representatives of the four universities plus CERN and CUFRA[3] would define the programme of lectures and appoint an on-site Coordinator. Students would take an exam at the end, under the responsibility of one of the partner universities. Their marks would be sent to their home university, together with an attestation that they had followed a European training programme. On the financial side, the expenses would be shared among the partner universities based on the number of their students, with a minimum of five students per university. They were also asked to search for grants to compensate for the extra cost of

[2]CLUSTER: Consortium Linking Universities of Science and Technology for Education and Research (then 10, now 12 elite European Universities in Science and Engineering).
[3]CUFRA: Centre Universitaire de Formation et de Recherche d'Archamps.

living experienced by students while in Archamps.

On 18 December 1992, M. Renaud, President of INPG, sent a letter to Carlo Rubbia, CERN Director General, (see Fig. IV.1.3) and on 4 February 1993, Carlo Rubbia sent a very positive response (see Fig. IV.1.4), mentioning the existence of the CAS (CERN Accelerator School) and the CERN Computing School, both supported by the CERN management.

With a potential teaching faculty composed of accelerator scientists from CERN and other laboratories, everything was set to start the adventure on the Archamps campus. In March 1993, following the agreement of the parties (the universities, CERN, and CUFRA), Marcelle Rey-Campagnolle agreed to take on the role of project Coordinator in charge of managing all pedagogical, administrative, material, and financial issues.

At the same time, contacts were established with Ted Wilson, then head of the CAS, to ensure compatibility. Unlike CAS, what would soon be known as the Joint University Accelerator School (JUAS) was designed for university students with no prior knowledge of accelerators and would run for three months. By mid-1993 a syllabus was prepared, with CAS suggesting topics and potential lecturers. The first recruitment campaign was launched under the banner: JOINT UNIVERSITIES ACCELERATOR SCHOOL "Graduate Level Courses in Accelerator Physics and Associated Technologies".

In less than two months, 19 applications were received (the largest group coming from Barcelona, with seven applicants). On 30 September 1993, the Secretary-General of CLUSTER, Prof. Holmes (Imperial College London), obtained the green light from the CERN Director General, Carlo Rubbia, to start JUAS in January 1994 (see Fig. IV.1.5): JUAS was born! However, the JUAS 1994 school was considered as "an experiment", and its success would have to be assessed before CERN's agreement was extended beyond 1994 (see Fig. IV.1.5).

Finally, in May 1994, after the first JUAS school, the CERN Scientific Policy Committee met and published a document summarizing the participation of CERN in the lecture programmes of external schools. The Committee wrote that the first Joint Universities Accelerator School has been considered extremely successful by both the students and the lecturers [6].

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Grenoble, le 18 12 1992

LE PRESIDENT

N Réf. : J.P. LONGEQUEUE

Objet :

Professor C. RUBBIA
Director
CERN
1211 GENEVE 23
SUISSE

Dear Professor Rubbia,

Four universities from France and Germany(1) are considering the possibility of organizing joint courses in Archamps where a university center is presently taking place and two other universities from Italy and Switzerland(2)are discussing the possibility of joining them. The main reason of our interest in such an implantation is related to the presence at CERN, at a few kilometers, of physicists and engineers at the highest level in technical fields such as data handling, acceleration of particles with a large number of techniques, supra conductivity...

Our idea would be to give to our students, during the last year of their studies, a formation in one or two domains : techniques of acceleration (including vacuum, supra conducting cavities, beam handling...) ; high rate acquisition and transmission of data. The courses would last 2 months. Thereafter students would leave Archamps to prepare a project or to have only a period of instruction, either at CERN or in a company related to the high technology researches developped at CERN.

I would like to ask you, in the name of the four universities, if CERN could support such an operation. By support I mean that you would authorize or ask engineers or physicists to give at Archamps between 150 and 200 hours of lectures in each of the 2 fields mentioned above during 2 months (January and february) and that you would accept to receive, during these 2 months, visits of the students in some of your laboratories where they could have a practical view of what they are learning, and finally to welcome some of them for projects or periods of instruction for a length of time going from 4 to 6 months.

There are, at CERN, top level specialists in technical fields and we think important that they communicate their knowledges to students who will be able to use them afterwards. We propose the techniques of acceleration because they are useful, for example, to run small accelerators in hospitals or for sterilization or for various industrial applications of irradiations and to run higher energy accelerators to get synchrotron radiations. In the same way we think that the experience of CERN in handling a tremendous amount of data can be useful in other fields and so we would like to give to our students a formation in these fields. We could also think of other domains, but it seems reasonable to begin with only these two, with groups of about 15 students in each one. Our aim is not to get specialists, but to give to future engineers or physicists, a basic knowledge in fields where our universities or schools dont teach very much.

Please let me know if you want more details on this project. If you could agree with our request, I suggest that the representatives of our universities meet you or your collaborators.

With my best regards

M. Renaud
Président de l'INPG

(1) List of the 4 universities :

Institut National Polytechnique de Grenoble, 46 Avenue Felix Viallet, Grenoble.
Technische Hoschule Darmstadt, Hochschulstr. 12, 6100 Darmstadt.
Universitat Karlsruhe, Postfach 6980, D-7500 Karlsruhe.
Université Joseph Fourier, BP 53 X, 38041 Grenoble Cedex.

Fig. IV.1.3: Letter from the INPG President to the CERN Director General on 18 December 1992.

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARC

European Laboratory for Particle Physics

DIRECTOR - GENERAL

CERN
CH-1211 GENEVA 23
SWITZERLAND

Telephone : GENEVA (022) 767 23 00
Telex : 419000 CER CH
Telegram : CERNLAB-GENEVE
Fax : (022) 767 75 55

Professor
M. Renaud
Président
I.N.P.G.
46 avenue Félix-Viallet
F - 38031 GRENOBLE Cédex

Your reference:
Our reference: DG/CR/fr/15294/8093

Geneva, February 4, 1993

Dear President,

Thank you very much for your letter dated 18 December 1992. Your initiative to pool several High Schools and to organise advanced courses in the vicinity of CERN appeals very much to me.

You may know that CERN supports a very small section running the so-called CERN Accelerator School, which organises courses of various levels at varying places around Europe (and sometimes even beyond), which are addressed to post-graduate staff from laboratories and have no connection with the academic system. There is a very substantial demand for these courses from many countries. While we cannot spend much effort on this activity, this means that a number of accelerator scientists in CERN and some other laboratories have some teaching experience, and that syllabi and some prepared courses do exist which could be used for the purpose you are proposing.

Similarly, some of our research staff are giving lectures on high-rate data acquisition and transmission at the CERN Computing School and at summer schools, so there might be some material which could be put to use.

I would therefore welcome a first round of discussions in order to better define the details of our participation and to prepare a document which I would then submit to our Scientific Policy Committee. I propose that you take contact with P. Darriulat or G. Plass to this effect.

Yours sincerely,

Carlo Rubbia

bcc. Directorate P. Darriulat

Fig. IV.1.4: Letter from the CERN Director General to the INPG President on 4 February 1993.

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH
European Laboratory for Particle Physics

DIRECTOR - GENERAL

CERN
CH-1211 GENEVA 23
SWITZERLAND

Telephone : GENEVA (022) 767 23 00
Telex : 419000 CER CH
Telegram : CERNLAB-GENEVE
Fax : (022) 767 75 55

Professor
P. Holmes,
Department of Civil Engineering
Imperial College
Imperial College Road
London SW7 2BU
Angleterre

Your reference:
Our reference: DG/CR/?/?/?

Geneva, September 30, 1993

Dear Professor Holmes,

Your letter dated 20 September 1993 on the Archamps Project 1994 was handed to me by P. Darriulat and G. Plass. I was pleased to see that the organization of the Joint Universities Accelerator School at Archamps by several universities, members of the Cluster Network, had progressed to your satisfaction and to ours.

I see therefore no objection to your informing the universities in time for the School to take place between January and March 15, 1994. As you probably are aware, there are still a few points of detail which remain to be solved but I am confident that M. Rey-Campagnolle on your side and P. Darriulat and G. Plass on ours will take care of them.

I should, however, like to consider the 1994 School as an experiment and to have its success assessed by both of us before extending my agreement to the Project beyond 1994.

I am very pleased that CERN can help in an initiative which has my full sympathy and I am looking forward to the success of the 1994 School.

Yours sincerely,

Carlo Rubbia

c.c. P. Darriulat
G. Plass
M. Renaud

Fig. IV.1.5: Letter from the CERN Director General to the President of the Imperial College on 30 September 1993.

References

[1] F. Merchez, Courses given in the DEA “Méthodes Physiques Expérimentales”, 2 December 1992, https://indico.cern.ch/event/1347740/attachments/2752041/4790679/Merchez.pdf.

[2] L. Rinolfi, Physique des Accélérateurs: une introduction pour piétons, CERN/PS 93-61 (LP), March 1993, https://cds.cern.ch/record/257557/files/P00020336.pdf.

[3] L. Rinolfi, Dynamique des particules légères/Source de rayonnement synchrotronique, CERN Note PS-LP-Note-90-21, 5 March 1990, https://cds.cern.ch/record/2853823/files/PS-LP-Note-90-21.pdf.

[4] L. Rinolfi, Le refroidissement stochastique, CERN Note PS-LP-Note-90-23, 5 March 1990, https://cds.cern.ch/record/2837627/files/PS-LP-NOTE-90-23.pdf.

[5] L. Rinolfi, Longitudinal Beam Dynamics Application to synchrotron, CERN-PS-2000-008-LP, 26 Apr 2000, doi:10.17181/CERN-PS-2000-008-LP.

[6] Scientific Policy Committee, Participation of CERN in the lecture programmes of external schools (JUAS and ESI), 3rd May 1994, pdf.