

SECTION XIV

SUMMARIES

ICFA ACTIVITIES

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Abstract ICFA and its activities are described briefly.

1 Introduction

ICFA stands for the International Committee for Future Accelerators, created by the IUPAP Commission on Particles and Fields (abb. as C11, hereafter) in 1977.¹⁾ Its aim is to promote world-wide international collaboration/cooperation in high energy physics. More specifically, the guidelines of ICFA, reformulated by C11 in 1985 read as follows:

Revised ICFA Guidelines (1985)

"To promote international collaboration in all phases of the construction and exploitation of very high energy accelerators"

"To organize regularly world-inclusive meetings for the exchange of information on future plans for regional facilities and for the formulation of a consensus on joint studies and uses"

"To organize workshops for the study of problems related to super high-energy accelerator complexes and their international exploitation and to foster research and development of necessary technology"

Composition of ICFA is

<u>Number of members</u>	<u>Region</u>
3	USA
3	USSR
3	CERN Member States
1	JINR Member States excluding USSR
1	Fourth region
1	China
1	Japan
1	Chairman, C11 (ex officio)

The present (1989) members of ICFA are:

ICFA Members (1989)

Chairman	Y. YAMAGUCHI	(Tokai UNIV.)
Secretary	W.O. LOCK	(CERN)
	W. HOOGLAND	(NIKHEF/CERN)
	C. RUBBIA	(CERN)
	V. SOERGEL	(DESY)
	L.G. PONDROM	(WISCONSIN)
	N.P. SAMIOS	(BNL)
	G.H. TRILLING	(LBL)
	Yu. M. ADO	(IHEP-
	E.A. MYAE	SERPUKHOV)
	A.N. SKKRINSKY	(INP-NOVOSIBIRSK)
	(Vacant)	(4TH REGION)
	SHOUXIAN FANG	(IHEP-BEIJING)
	Y. YAMAGUCHI	(TOKAI UNIV.)
	D. KISS	(JINR)
[Chairman, C11]	K. STRAUCH	(HARVARD)

Chairman (1990 - 1992) of ICFA: A.N. SKRINSKY

ICFA members have a 3 year term renewable. The next Chairman (1990-1992) will be A.N. Skrinsky (to be approved by C11).

2 Past activities of ICFA

ICFA, in accordance with its aims, organized three workshops.

ICFA Workshops

1. Technical Possibilities and Limitations of Accelerators and Detectors
Fermilab 16-21 Oct 1978
2. Accelerator and Detector Possibilities and Limitations
Les Diablerets and CERN
4-10 Oct 1979
3. Possibilities and Limitations on Superconducting Magnets
for Accelerators
Protvino 19-24 Oct 1981

Pioneering studies on e^+e^- colliders of > 100 GeV and 20 TeV proton synchrotron were presented there. Notably the idea of colliding linacs (linear colliders) was presented and pursued at the second workshop. They evolved and/or realized as LEP, SSC, LHC and SLC.

ICFA also began to organize a series of the International ICFA Seminar on Future Perspectives in High Energy Physics every three years since 1984.

ICFA Seminar on Future Perspectives in High Energy Physics:

- | | | | |
|----|-----|------|----------------|
| 1) | May | 1984 | KEK, Japan |
| 2) | Oct | 1987 | BNL, USA |
| 3) | Oct | 1990 | Protvino, USSR |

This series of ICFA Seminars are unique in their participants: 20-25 participants from each of four regions, namely, CERN Member States, Dubna Member States, North America, and other regions, and consisting of high energy physicists, accelerator experts and people of funding agencies to high energy physics, truly world wide participation. There, the present status and future perspectives of high energy physics are reviewed. ICFA tries to seek ways to promote interregional cooperation/collaboration in this field. Moreover, the activities of ICFA Panels (see 3) are reviewed.

The revised ICFA guidelines, mentioned above, were adopted and the four ICFA Panels (described in 3) were established following discussion and recommendation of the ICFA Seminar, 1984, KEK.

It should be noted that ICFA was born based on discussions and recommendations at the seminar of the same title, organized by V.F. Weisskopf, held at New Orleans, 1975.¹⁾

A notable achievement of ICFA in the early days was the formulation of the ICFA Guidelines for the Interregional Utilization of Major Regional Experimental Facilities for High Energy Particle Physics Research (ICFA 1980) which were approved by the directors of all major high energy physics laboratories in the world:

Guidelines proposed by ICFA for the Interregional
Utilization of Major Regional Experimental Facilities
for High-Energy Particle Physics Research

(Agreed by ICFA at its Fifth Meeting held at CERN on 9 July 1980)

- Considering that in the future major experimental facilities for high energy particle physics research, notably the very largest particle accelerators and colliding beam machines, are likely to be few in number, probably only one of each type of the very highest energy and that these machines will be located in different regions of the world.
- And recognizing that experimental physicists from all regions will wish to gain access to these few machines in order to pursue their research,
- ICFA proposes that the regional laboratories operating these facilities should adopt a common policy towards experimental physicists from other regions seeking to use the facilities they operate. The guidelines proposed are as follows:
 1. The selection of experiments and the priority accorded to them are the responsibility of the Laboratory operating the regional facility.
 2. The criteria used in selecting experiments and determining their priority are:
 - (a) scientific merit
 - (b) technical feasibility
 - (c) capability of the experimental group
 - (d) availability of the resources required.
 3. It is expected that teams from other regions will normally wish to join with local regional teams to form experimental groups in proposing and carrying out experiments using a regional facility. The national or institutional affiliations of the teams should not influence the selection of an experiment nor the priority accorded to it.
 4. The availability of the resources needed for the experiment are examined at the time of selection of the experiment (see 2 (d) above). The contributions of each team and of the Operating Laboratory to an experiment are the subject of agreements drawn

up between the Operating Laboratory and the authorized leaders of the teams in the experimental group. When appropriate, realisation of the proposals approved may be effected within the framework of bilateral and multilateral agreements in force or newly reached arrangements.

5. Operating laboratories should not require experimental groups to contribute to the running costs of the accelerators or colliding beam machines nor to the operating costs of their associated experimental areas.
6. It is expected that averaged over a reasonable period of time the application of guideline 2. above will lead to a balanced use of the major new facilities by the regions concerned. However, if at any time an Operating Laboratory finds that the participation of teams from other regions in their experimental programme is becoming excessive, the Operating Laboratory may be obliged to limit that participation. Any such action should be accompanied by discussions with the relevant authorities of the regions concerned and consultations with the other operating laboratories subscribing to the Guidelines laid down in this documents.

3 ICFA Panels

Four ICFA Panels on specific subjects were set up in order to upgrade ICFA's activity at the ICFA seminar and meetings in 1984 at KEK under the leadership of ICFA Chairman, V.L. Telegdi.

Each ICFA Panel consists of about 16 members from all regions (i.e., including developing regions), and aims at the exchange of information and coordination of the activities on the specific subjects. ICFA Panel members not only meet about once per year but also organize appropriate workshops and schools. There are four ICFA panels, viz:

- Instrumentation Innovation and Development,
Chairman: T. Ekelof (Uppsala/CERN)
- Beam Dynamics,
Chairman: E. Keil (CERN)
- New Accelerator Schemes and Technologies,
Chairman: R. Palmer (BNL/SLAC)

Superconductivity and Cryogenics,

Chairman: H. Hirabayashi (KEK)

These ICFA Panels indeed upgraded ICFA's activity in the world-wide high energy community. I am very happy to acknowledge the excellent work of the ICFA Panel chairmen and members.

I shall describe briefly the activity of each ICFA Panel.

(1) ICFA Panel on Instrumentation Innovation and Development.

This most active Panel aims to deal with instrumentation issues for ultra high energy and ultra high intensity accelerators/colliders. It has organized a series of international schools on instrumentation, supported by several high energy laboratories, ICTP (Trieste) and others:

ICFA Instrumentation Schools

1 st school	8-9 June 1987, Trieste (ICTP)
2 nd school	12-23 June 1989, Trieste (ICTP)
3 rd school	16-28 July 1990, Rio de Janeiro
4 th school	June 1991, Trieste (ICTP)

I have included here the future schools. These schools include several laboratory sessions besides a number of series of lectures. Fifty percent of students were (and will be) from developing countries and supported by ICTP (Trieste).

This panel has been publishing an ICFA Instrumentation Bulletin, a few issues per year since March 1986, whose circulation is now world-wide with ~2500 copies. No.7 of Bulletin will be issued in Sept. 1989.

Finally, this panel is preparing a collection of papers, ICFA Review of Detector Properties (a sort of analogue to the Review of Particle Properties) which will be published as special volumes of Nucl. Instr. and Meth. and in booklet form.

(2) ICFA Panel on Beam Dynamics.

This panel is working for important beam dynamics problems in accelerators, colliders and storage rings. Under the present chairman it organized the following workshops (including again future ones):

Workshop on Aperture-Related Limitations of the
Performance and Beam Lifetimes in Storage Rings
11-16 April 1988, Lugano

Workshop on Beam-Beam Effects in Circular Colliders

29 May - 3 June 1989, Novosibirsk

Workshop on Collective Effects of Short Bunches

7-13 October 1990, KEK

Workshop on Operations Simulation in 1991 in USA

Workshop jointly with the ICFA Panel on New Accelerator Schemes
and Technologies on Beam-Beam Effects in Linear Colliders

This panel prepares the international school:

ICFA Beam Dynamics School

14-25 May 1990, Trieste (ICTP)

< 60 students

Moreover this panel has been publishing a Beam Dynamics Newsletter (≥ 1000 copies), supported by DESY and University of Siegen. No.4 of this Newsletter will appear in Aug. 1989.

(3) ICFA Panel on New Accelerator Schemes and Technologies.

The subjects of this Panel are so obvious. We indeed need a breakthrough in new acceleration methods to go beyond SSC/LHC.

This panel organized the following workshops including again future ones:

Workshop on the Physics of Linear Colliders

12-18 June 1988, Capri

Workshop on High Current Cathode

8-22 June 1990 (after EPAC), Bandor Island (France)

Joint Workshop with the ICFA Panel on Beam Dynamics on

Beam-Beam Effects in Linear Colliders in 1991 (see above)

Scientists seeking for new acceleration methods are many who may not belong to high energy communities. New ideas may emerge from the fourth region. Better contacts of relevant scientists are obviously needed. As a first step to establish better links between East and West, some members of this panel are planning to make a visit to the USSR during 16-26 October 1989.

(4) ICFA Panel on Superconductivity and Cryogenics.

This panel deals with superconducting magnets and RF cavities needed for high energy facilities together with cryogenics.

This panel has been concentrating its effort to finalize the "ICFA Standard for Superconducting Wire and Cable of Accelerator

Magnets". The Panel has circulated its draft (up to third version) at appropriate conferences and among relevant experts and firms, and expects to make a final version in 1990.

This panel will also study high T_c superconducting materials, and will edit "Data Sheets of Refrigerator/Liquefiers in High Energy Accelerators and Detectors".

4 Concluding Words

ICFA has no funds of its own. Its activity relies on support from the world-wide high energy community, notably the support of major high energy laboratories, ICTP and many others. On behalf of ICFA, I acknowledge deeply their support in the past and appeal for their continued support for ICFA in the future. I would like to invite members of high energy communities to join the activities of ICFA.

High energy accelerators and related technology have grown up in industrialized regions. By now, they have spread world-wide, as you witnessed here: BEPC, Tristan, and many synchrotron light sources (built, under construction or in the planning phase in China, Korea, Taiwan, Latin America and possibly Indian continent) are some concrete examples. World-wide collaboration in high energy physics now really makes sense and continues to develop. Finally I am confident that ICFA will contribute more and to more interregional collaboration in the coming years under the eminent, next chairman Skrinsky.

Thank you.

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- ICFA and its activities have been described in
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