

ICFA Report to New Frontiers in Physics

January 2011 to April 2012

Pier Oddone – ICFA Chair

ICFA Membership

April 2012

CERN Member States

R. Heuer
M. Krammer
J. Mnich

USA

R. Brock
P. Drell
P. Oddone (Chair)

Japan

S. Komamiya
A. Suzuki

Russia

A Bondar
S. Ivanov

Canada

W. Trischuck

China

Y. Wang

Other Countries

G. Alves
A. Roy
V. Tsakanov

C11

H. Aihira

(Secretary: R. Rubinstein)

ICFA Meetings

January 2011 to April 2012

- 17/18 February 2011. IHEP/Beijing
- 24 August 2011. During LP2011, Mumbai
- 4 October 2011. During ICFA Seminar, CERN
- 2/3 February 2012. Oxford
 - At each February meeting, directors of world's leading particle physics labs are also invited
 - This allows a more extensive discussion of the present and future status of particle physics

BEACONS OF DISCOVERY

THE WORLDWIDE SCIENCE OF PARTICLE PHYSICS

A Global
Vision

What do we
know?

Twenty-first
century
questions

Tools of
particle
physics

Science &
society

Beacons of
international
collaboration

International
Committee
for Future
Accelerators

To discover what our world is made of and how it works at the most fundamental level is the challenge of particle physics. The tools of particle physics—experiments at particle accelerators and underground laboratories, together with observations of space—bring opportunities for discovery never before within reach. Thousands of scientists from universities and laboratories around the world collaborate to design, build and use unique detectors and accelerators to explore the fundamental physics of matter, energy, space and time. Together, in a common world-wide program of discovery, they provide a deep understanding of the world around us and countless benefits to society. *Beacons of Discovery* presents a vision of the global science of particle physics at the dawn of a new light on the mystery and beauty of the universe.

Beacons of Discovery

- Unveiled by ICFA in October 2011 to provide a global picture of particle physics
 - Compelling science of the field, with new tools providing opportunities for discoveries not previously possible
 - Accelerators and experiments are beyond the reach of a single region to build and operate
 - Particle physics gives a good example of cooperation in an international arena

Available at: <http://interactions.org/beacons>

ICFA Seminar

- Four-day seminars, held every three years
- Allow for an international exchange of information on plans for future particle physics facilities
- Typical attendance ~ 200 invited leading accelerator and particle physicists, together with leaders from related topics (astroparticle physics, scientific computing, outreach, etc.)
- Representatives of government funding agencies also invited
- Most recent ICFA Seminar 3-6 October 2011 at CERN

Revised ICFA Guideline #5

- For many years, ICFA Guideline #5 was:

“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.”
- At the February 2011 ICFA meeting, this was replaced by:

"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. *However, in particular for a large global facility, allocation of operating costs should be agreed by the project partners before project approval, while still allowing open access for experimental groups.*"

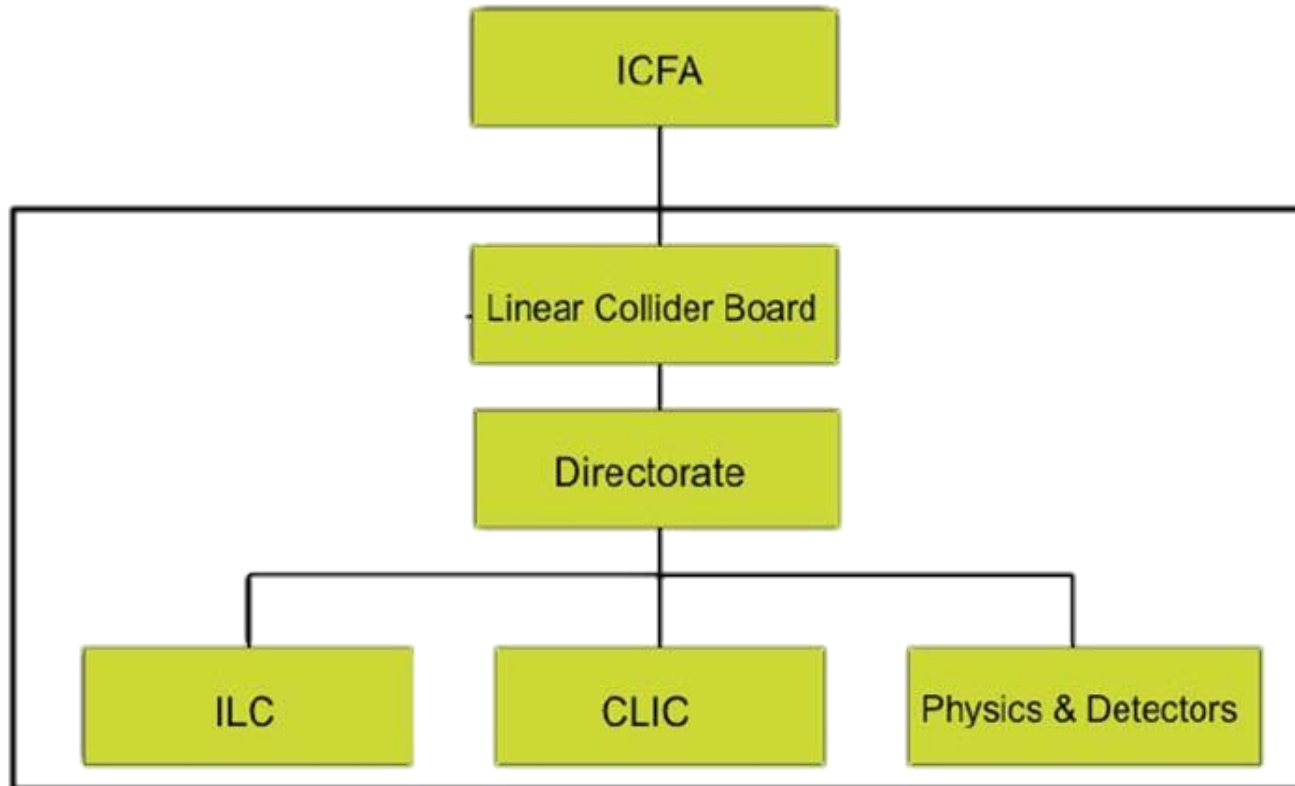
International Committee for Ultra Intense Lasers (ICUIL)

- There is now collaboration between ICFA and the International Committee on Ultra-High Intensity Lasers (ICUIL) to study laser acceleration of particles
- Several workshops have been held
- A White Paper has been produced on the technical challenges still to be overcome
- Uses could be small accelerators for particle physics, photon sources, medical uses, etc.

International Linear Collider Steering Committee (ILCSC)

- ILCSC was set up by ICFA to facilitate the global collaborative effort on the ILC
- Over past year there has been a wide-ranging discussion in ILCSC on how ILC planning should proceed after completion of the accelerator and detector design documents in late 2012, and their review
- Discussion still ongoing, but becoming more clear, and should be completed at the July 2012 ICFA meeting
- The new organization will include CLIC. The goal is to prepare a linear collider proposal, with the strong support of the particle physics community, whose timing and contents will be shaped by LHC and other relevant physics data

Integrated Linear Collider Organization



Integrated Linear Collider Organization

- At Oxford meeting, ICFA established a nominating committee for LC director with two representatives per region: Americas: Oddone, Trischuk, Asia: Komamiya, Jie Gao; Europe: Mnich, Krammer
- The committee has converged, candidate is willing to serve, pending arrangements for affiliation and ICFA approval – I will seek ICFA approval this month
- After LC director is on board, ILCSC will work with the LC director to nominate ILC, CLIC and Physics leaders. Will try, but not guaranteed, that we would have nominations for consideration at Melbourne

Project Advisory Committee

- ILCSC set up the Project Advisory Committee (PAC) in 2008 to assist it in the oversight of both the GDE accelerator activities and the ILC detector activities.
 - Meets twice a year
 - Current Chair is Lyn Evans (CERN)
 - Reports are made public at
 - http://www.fnal.gov/directorate/icfa/ICFA_ILC_PAC_final_mandate.htm

ILC Project Implementation Planning

GDE has produced a draft ILC Project Implementation Planning document

http://ilc-edmsdirect.desy.de/ilc-edmsdirect/file.jsp?edmsid=*0979545

The document gives recommendations on the governance of the ILC, following GDE's reviews of other very large scientific projects

Neutrino Facilities

- Considered several years ago, but ICFA declined to become involved until there was a community consensus on the need
- An international design study for a neutrino factory is underway, to be completed, including costs, in 2013
- ICFA is currently studying how it can help these efforts. The impact of a large θ_{13} needs to be evaluated on the physics reach with superbeams and neutrino factories

Reports to ICFA

- ICFA regularly receives reports from
 - Its Panels (Instrumentation, Beam Dynamics, Advanced Accelerators, Interregional Connectivity, International Linear Collider Steering Committee, HEP Data Preservation)
 - InterAction (the particle physics communicators' organization)
 - Each country and region represented at the meeting
 - CLIC

I reported to FALC on April 17,2012, and stated that ICFA looks forward to provide FALC with:

- any input that would be useful in FALC's deliberations and
- and more specifically any input that would be useful in FALC's role coordinating the global program in particle physics