

Activities of the International Committee for Future Accelerators (ICFA)

September 2014 – September 2015

Roy Rubinstein – ICFA Secretary

1. Introduction

During the past year there were three ICFA meetings: on 27 October 2014 during the ICFA Seminar in Beijing; on 26/27 February 2015 in Newport News, USA; and on 19 August 2015 in Ljubljana, Slovenia, during the Lepton-Photon Symposium. At the February meeting, which is the major annual ICFA meeting, directors of the world's leading particle physics laboratories are also invited, as has been the practice for the past ~ 2 decades. This allows a more extensive discussion of both the current and the future status of particle physics.

The current ICFA membership is given in Appendix I.

2. International Linear Collider (ILC)

The Linear Collider Collaboration (LCC) under ICFA's Linear Collider Board (LCB) continues to work with the ILC Project Office at KEK on specific issues for the Japanese preferred ILC site. The LCC continues to provide input for the Japanese government bodies studying the possibility of hosting the ILC, and also interacts with labs and funding agencies around the world to further the realization of the ILC.

A Japanese Advisory Panel on the ILC has issued an interim report, which includes the recommendation to share costs internationally; the need for a clear vision on the discovery potential for new particles; the need to monitor closely LHC Run II data; the need to mitigate project cost risk; and the need to have public and science community understanding of the project. ICFA is producing a detailed reply to the Panel addressing these issues.

The LCB has produced a document on suggested governance of an ILC laboratory, and this will be sent to the appropriate Japanese government bodies.

During the past year, industrial superconducting RF cavity gradients have almost reached the ILC specified gradient of 31.5 MV/m, and the ATF2 test facility at KEK has almost achieved a beam spot size which corresponds to the desired ILC goal of 6 nm.

There have been some ILC design changes since the 2013 TDR, some specific to the Japanese preferred site; they include a common L* for both detectors; vertical access to the IR; and a ~ 1.5 km extension of each accelerator tunnel for timing and

redundancy. A running scenario has been produced to optimize the physics output of the ILC, with the understanding that any actual running scenario will depend on then-available LHC and ILC physics results.

A review of the ILC status was held on 13/14 April 2015 at LAL, Orsay, by the LCB's Project Advisory Committee.

The current LCB mandate (and that of the LCC) expires in February 2016; ICFA has extended both until the end of 2016, and during 2016 will review the membership and mandates of both of these bodies.

3. ICFA Seminar

ICFA Seminars are held every three years, and the 11th of this series took place in IHEP, Beijing on 27-31 October 2014. With an invited attendance of 150-200 leading members of the fields of accelerator and particle physics and related topics, these Seminars allow an international exchange of information on plans for future facilities in the field of particle physics; representatives of government funding agencies and the media are also invited.

Following the 2014 Seminar, ICFA concluded that these Seminars continue to be valuable, and the 2017 Seminar will be held in Vancouver.

4. Proposed IUPAP Working Group on Accelerator Science

A new IUPAP Working Group on Accelerator Science has been proposed. Since ICFA is an existing IUPAP Working Group involved in accelerator-related issues, it was asked for comments on the proposal. ICFA's views are summarized in the following:

- ICFA represents the major labs worldwide that carry out research at the energy frontier
- ICFA has well-established Panels very relevant to many aspects, including generic, of accelerator R&D
- ICFA would welcome a new IUPAP working group which covers a broader area of accelerators than ICFA itself does; the new group should have links to ICFA and duplication should be avoided
- ICFA Panels can be a bridge to the new group.

An interim working group is being set up by IUPAP to propose a charge and initial membership of the new Working Group, and ICFA has been asked for nominations to the interim working group.

5. Proposed ICFA Panel on Sustainable Accelerators and Colliders

There is a proposal for an ICFA Panel on Sustainable Accelerators and Colliders; the goal of the proposed Panel is to improve the power efficiency of every accelerator component; to have energy recovery from the accelerator; to re-use the recovered energy; and to have a stand-alone system to provide all or part of the accelerator

power needs. An ICFA subgroup was asked to look at existing initiatives in this area and, if appropriate, to produce a possible mandate and goal for such an ICFA Panel.

6. Reports

Reports were presented to ICFA meetings on the activities of ICFA's Panels; the ICFA/ICUIL collaboration on particle acceleration by lasers; the current status of studies for very large circular accelerators in China and Europe; and activities at each country and lab represented at the meeting. There were also reports given on InterAction (the particle physics communicators' organization) and on FALC (Funding Agencies for Large Colliders) activities.

Appendix I

ICFA MEMBERSHIP

September 2015

CERN Member StatesH. Abramowicz
R. Heuer
J. Mnich (Chair)USAN. Lockyer
D. MacFarlane
I. ShipseyJapanT. Mori
M. YamauchiRussiaA. Bondar
S. IvanovCanada

M. Roney

China

Y. Wang

Other CountriesM. Cho
L. de Paula
V. MatveevC11

J. Fuster

(Secretary: R. Rubinstein)