

ECFA ACTIVITIES

CHIPP Plenary meeting
Fribourg, 30 June – 2 July, 2014

Lenny Rivkin, EPFL & PSI

ECFA 1st High Luminosity
LHC Experiments Workshop
Physics and Technologies
Challenges

2nd workshop planned for
21–23 October, 2014
(again) in Aix–Les–Bain,
France



The poster features a scenic background of a lake and mountains. It includes a QR code in the top left, the workshop title in yellow and red, the dates '1st – 3rd October' in red, and the location 'Aix-les-Bains France' in yellow. A URL is provided below the location. The poster lists the Programme Committee and Local Organising Committee members. At the bottom, there are logos for Aix-les-Bains centre des congrès, ECFA, High Luminosity LHC, ALICE, CMS, LHC WIPAC, and CERN. A vertical credit line on the right reads 'Picture Credit: OT Aix-les-Bains / Gilles Lansard'.

 **ECFA High Luminosity LHC
Experiments Workshop**
Physics and technology challenges
1st – 3rd October
**Aix-les-Bains
France**

<https://indico.cern.ch/conferenceDisplay.py?confid=252045>

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Local Organising Committee
P. Allport, D. Contardo, D. Hudson, E. Potter



Picture Credit: OT Aix-les-Bains / Gilles Lansard

ECFA mandate includes

“Monitoring of the ongoing implementation of the European Strategy for Particle Physics”

Discussion on future (post-LHC) accelerators:

- **ILC and CLIC:** continuous support through the ECFA LC study
- **FCC (Future Circular Collider):**
RECFA strongly supports the proposed design study!
ECFA represented in steering committee

Goal: Have studies available at the time of the next European Strategy Update in sufficient details on physics case, technological feasibility and with stable cost estimates.

P5 recommendations

LHC

LBNF

ILC in Japan
(beyond scope)



FIGURE 1 Approximate construction (blue; above line) and expected physics (green; below line) profiles for the recommended major projects, grouped by size (Large [$> \$200M$] in the upper section, Medium and Small [$< \$200M$] in the lower section), shown for Scenario B. The LHC: Phase 1 upgrade is a Medium project, but shown next to the HL-LHC for context. The figure does not show the suite of small experiments that will be built and produce new results regularly.



ILC in Japan's Master Plan of Large Research Projects (HEP related, all category A)

- Exploring Physics beyond Today's Particle Theory with a Super Bfactory (Operation 2013 – 2020)
- Revealing the Origin of Matter with an Upgraded J-PARC (2015 – 2019)
- World Research Center for the **ILC** International Linear Collider (2025 – 2034)
- Nucleon Decay and Neutrino Oscillation Experiments with Large Advanced Detectors (Hyper-Kamiokande, operation 2021– 2035)

European LC Forum

Launch of a bi-directional information channel between the European members of LCB and the European linear collider community.

Web site (for information and subscription): <http://elcf.desy.de>

Home Meetings Contact

European Linear Collider Forum

European Linear Collider Forum

Mandate of the European Linear Collider Forum

The European Linear Collider Forum (ELCF) was created by ECFA in order to channel European discussions concerning future linear colliders and to facilitate input for the international Linear Collider Board (LCB) meetings.

Participation in the ELCF

Participation in the ELCF is open to all physicists working on linear collider projects in Europe. Especially senior colleagues are encouraged to participate.

News and upcoming meetings

The next meeting of the ELCF is scheduled for Tuesday, 11 February 2014, 10:00 CET.

Imprint | Contact | © 2013 DESY Deutsches Elektronen-Synchrotron

Coordinated by J. Mnich
Technical support by
Thomas Schörner-Sadenius

Next meetings before and
after LCB in Valencia on July 6

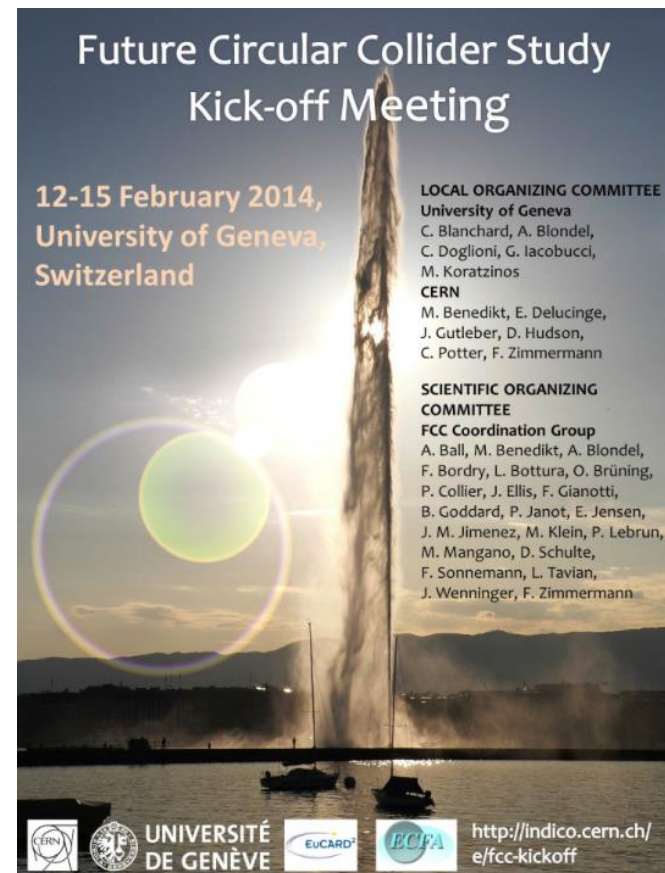
Future Circular Collider Study (FCC)

Launch of a conceptual design study for Future Circular Collider
(under the auspices of ECFA)

Kick-off meeting 12-15 February 2014,
University of Geneva

<http://indico.cern.ch/event/282344/>

330 registered participants



Slides from M. Benedikt (Study coordinator together with F. Zimmermann)

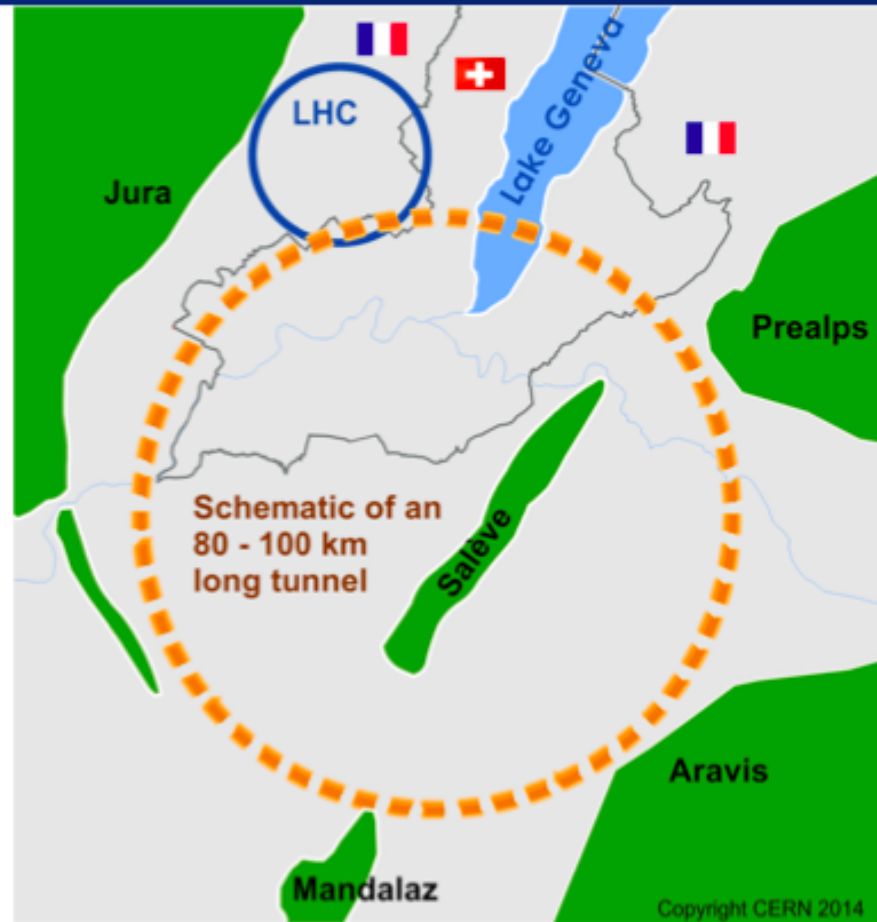
Future Circular Collider Study - SCOPE CDR and cost review for the next ESU (2018)

Forming an international collaboration to study:

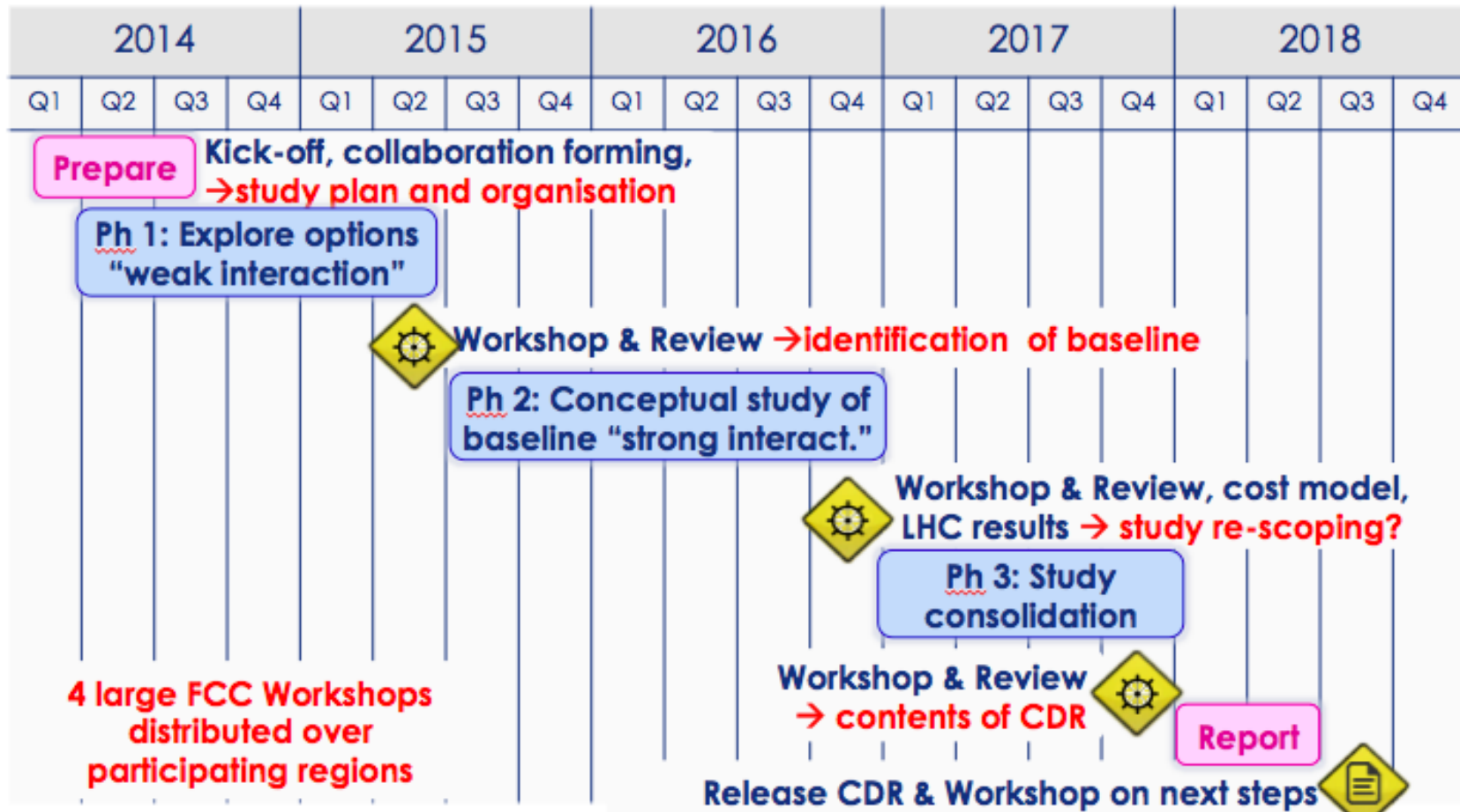
- ***pp*-collider (*FCC-hh*)**
→ defining infrastructure requirements

~16 T ⇒ 100 TeV *pp* in 100 km
~20 T ⇒ 100 TeV *pp* in 80 km

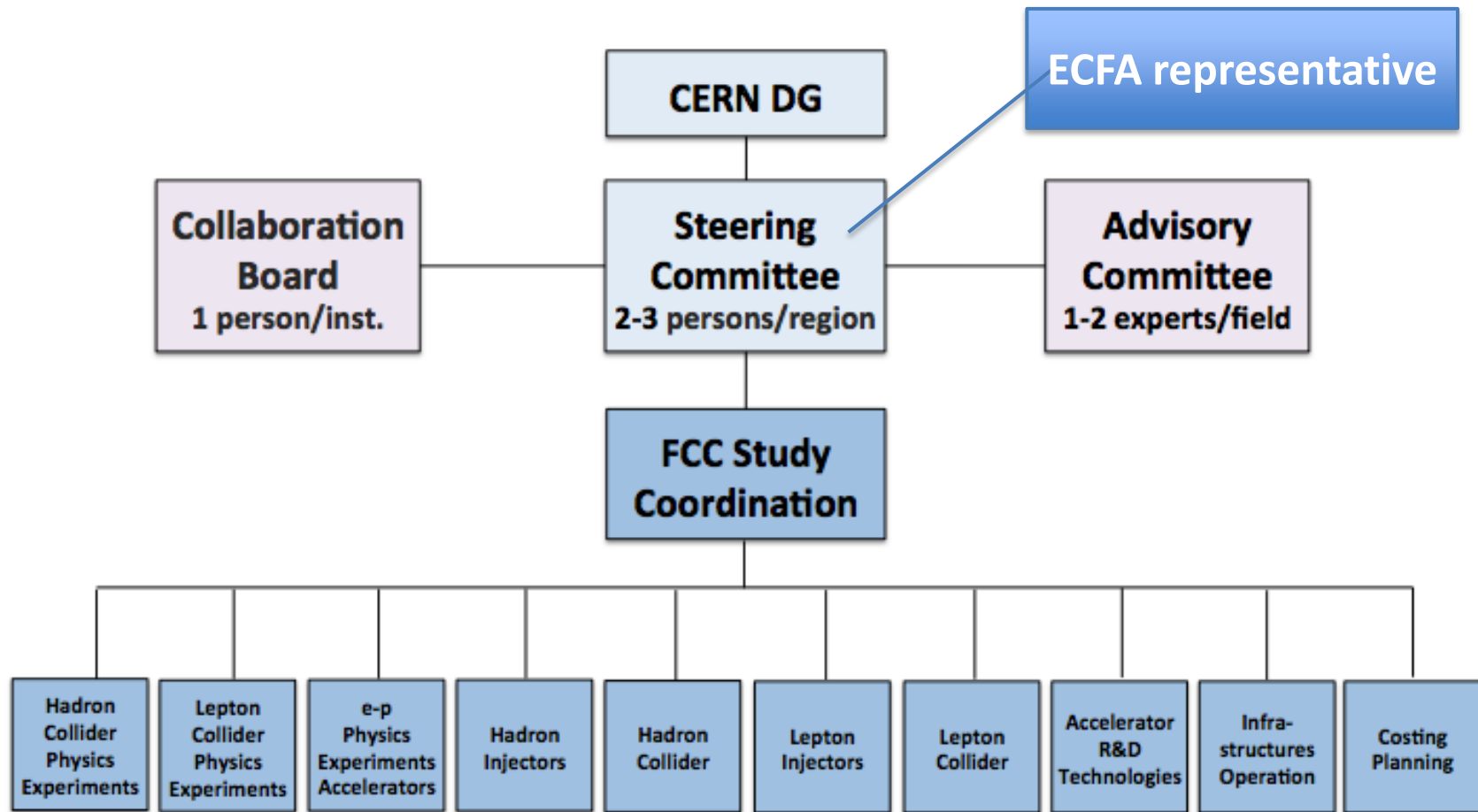
- ***e⁺e⁻* collider (*FCC-ee*)** as potential intermediate step
- ***p*-*e* (*FCC-he*) option**
- **80-100 km infrastructure** in Geneva area



Proposal for FCC Study Time Line



Proposed international organization structure



News from ICFA

- Organization of the 11th ICFA seminar at IHEP, Beijing, on 27-30 October 2014, <http://icfa2014.ihep.ac.cn>



- Appointment of the next ICFA chair person (rotation scheme brings the ICFA chair back to Europe):
Joachim Mnich (DESY)



News from ICFA

ICFA meeting February 21 at DESY (preceded by an Linear Collider Board meeting)
Reports from FALC, ILC, Global HEP Planning, ICFA Panels,...

- Following the LCB meeting and the discussion in ICFA, the following statement was issued:

The International Committee for Future Accelerators (ICFA) is pleased to note the great progress of the global community's efforts to realize a linear collider built in Japan. ICFA, which includes the Directors of the world's major accelerator laboratories, will evaluate the technical capabilities worldwide to build the ILC.

- Global HEP Planning (100 TeV pp collider)
Discussion on the two proposed studies launched by CERN and China (see later)
ICFA agreed on the following statement:

ICFA supports studies of energy frontier circular colliders and encourages global coordination.

Chinese Plans

Remarkable presentation and comments by Yifang Wang (IHEP, Beijing) at the FCC Kickoff Meeting and at the ICFA Meeting.

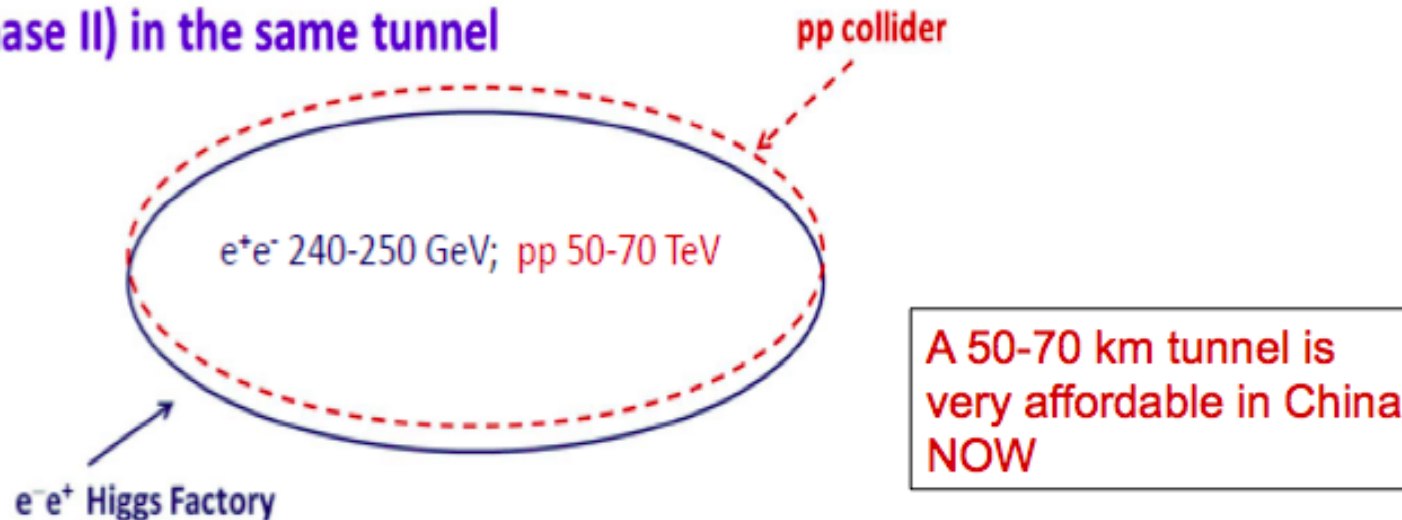
Plans (by the scientific community):

- e^+e^- circular collider Higgs-factory followed by a pp collider using the same tunnel
- Reconfirm Chinese intention to participate in the ILC in Japan as a major partner

Slides from Yifang Wang (IHEP, Beijing):

CEPC+SppC

- For about 8 years, we have been talking about “What can be done after BEPCII in China”
- Thanks to the discovery of the low mass Higgs boson, and stimulated by ideas of Circular Higgs Factories in the world, CEPC+SppC configuration was proposed in Sep. 2012
- Circular Higgs factory (phase I) + super pp collider (phase II) in the same tunnel



Slides from Yifang Wang (IHEP, Beijing):

Site

- Preliminary selected: Qinhuangdao (秦皇岛)
- Strong support by the local government



Slides from Yifang Wang (IHEP, Beijing):

Main Parameters of SppC

Timeline (dream)

- **CPEC**
 - Pre-study, R&D and preparation work
 - Pre-study: 2013-15
 - Pre-CDR by the end of 2014 for R&D funding request
 - R&D: 2016-2020
 - Engineering Design: 2015-2020
 - Construction: 2021-2027
 - Data taking: 2028-2035
- **SppC**
 - Pre-study, R&D and preparation work
 - Pre-study: 2013-2020
 - R&D: 2020-2030
 - Engineering Design: 2030-2035
 - Construction: 2035-2042
 - Data taking: 2042 -

EPS-HEPP Board

- Statement by the EPS-HEPP Board: Why fund basic science?
<http://eps-hepp.web.cern.ch/eps-hepp/Initiatives/PositionStatementBasicResearch.pdf>
- EPS-HEPP Board already very busy to prepare EPS2015
(**July 22-29, 2015 in Vienna**)
- Again joint **ECFA - EPS-HEPP session** will be held
(suggestions for good themes?)

ECFA-ICFA Instrumentation School in Serbia

September 8-13, 2014
University of Novi Sad

<http://cern-danube-school.uns.ac.rs/>



Danube School on Instrumentation in Elementary Particle & Nuclear Physics

UNIVERSITY OF NOVI SAD, SERBIA
September 8-13, 2014

The school is an equal opportunity event intended for MSc, PhD and Postdoc students who want to acquire hands on experience in different detector technologies used in Particle Physics and Nuclear Physics. Researchers, who are actively involved in the field and are recognized experts in detector R&D, will give lectures and state-of-art laboratory sessions. Students are encouraged to attend, contribute and share their experience.

Review Talks

- Higgs Boson: from QED to LHC
- Future Challenges in Physics
- The Linear Colliders Challenges
- Neutrino Physics
- The Challenge of B-physics and rare decay events
- Astro-particle and dark matter searches
- Nuclear Physics

Accompanied by **lectures** and **laboratory "hands-on" practice** on detector techniques both in particle and nuclear physics.

INTERNATIONAL ADVISORY COMMITTEE

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M. Veskošić, University of Novi Sad (School Director)

More information and registration:
<http://cern-danube-school.uns.ac.rs>

Deadline for applications:
June 15th 2014

Restricted ECFA meetings

- Stockholm, 20 July 2013
- Budapest, 5 October 2013
- CERN, 21 November, 2013
- Jerusalem, 11 April, 2014 (CERN 21st member)
- Bonn, 9 May, 2014
- *DESY, 24 July, 2014*

Plenary ECFA meetings

- Stockholm, 20 July 2013, EPS–HEP
- CERN, 21 / 22 November 2013

Member countries midterm reports:

- **Switzerland (Olaf Steinkamp)**
 - Bulgaria and Norway
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- *DESY, 24/25 July 2014*
 - Belgium and Finland