ECFA ACTIVITIES

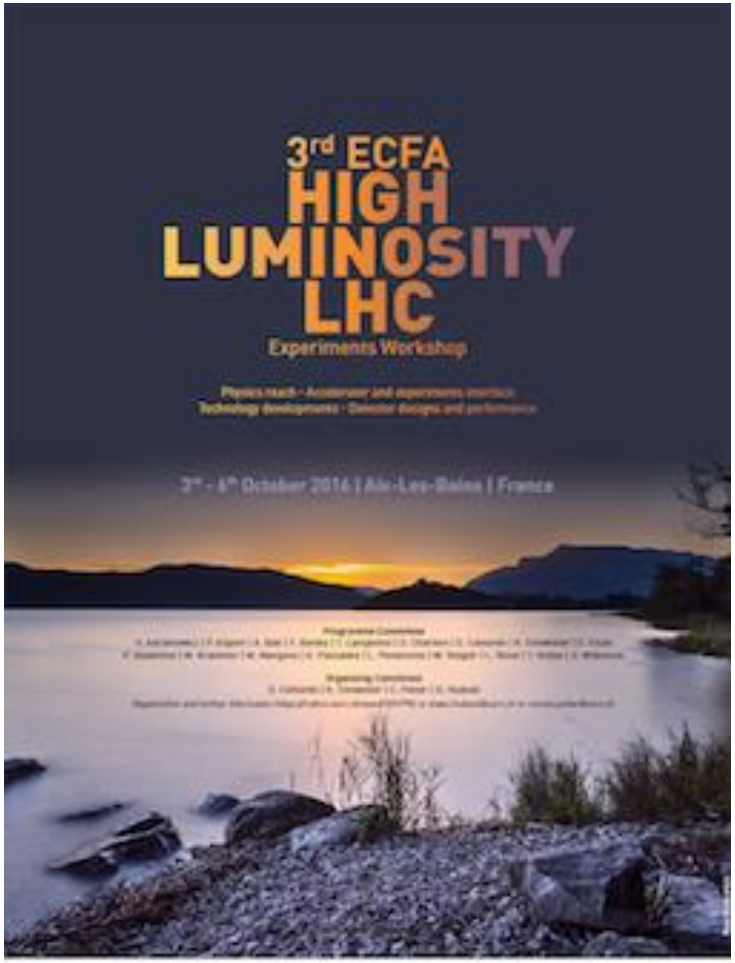
CHIPP Plenary meeting
USI, Lugano, 23 August, 2016

Lenny Rivkin, EPFL & PSI

ECFA High Luminosity LHC Experiments Workshop

3d Workshop: 3-6 Oct. 2016, Aix-les-Bains, F
http://indico.cern.ch/event/524795/

- Preparation of Technical Design Reports for ATLAS and CMS upgrades
- execution of the ALICE and LHCb upgrades
- progress in the theoretical concepts
- assess the physics reach of the experiments
- optimization of the detector design
- new ideas to operate at the extreme rates and collision pile-up conditions
- accelerator options to facilitate the experiment operation, enhanced performance

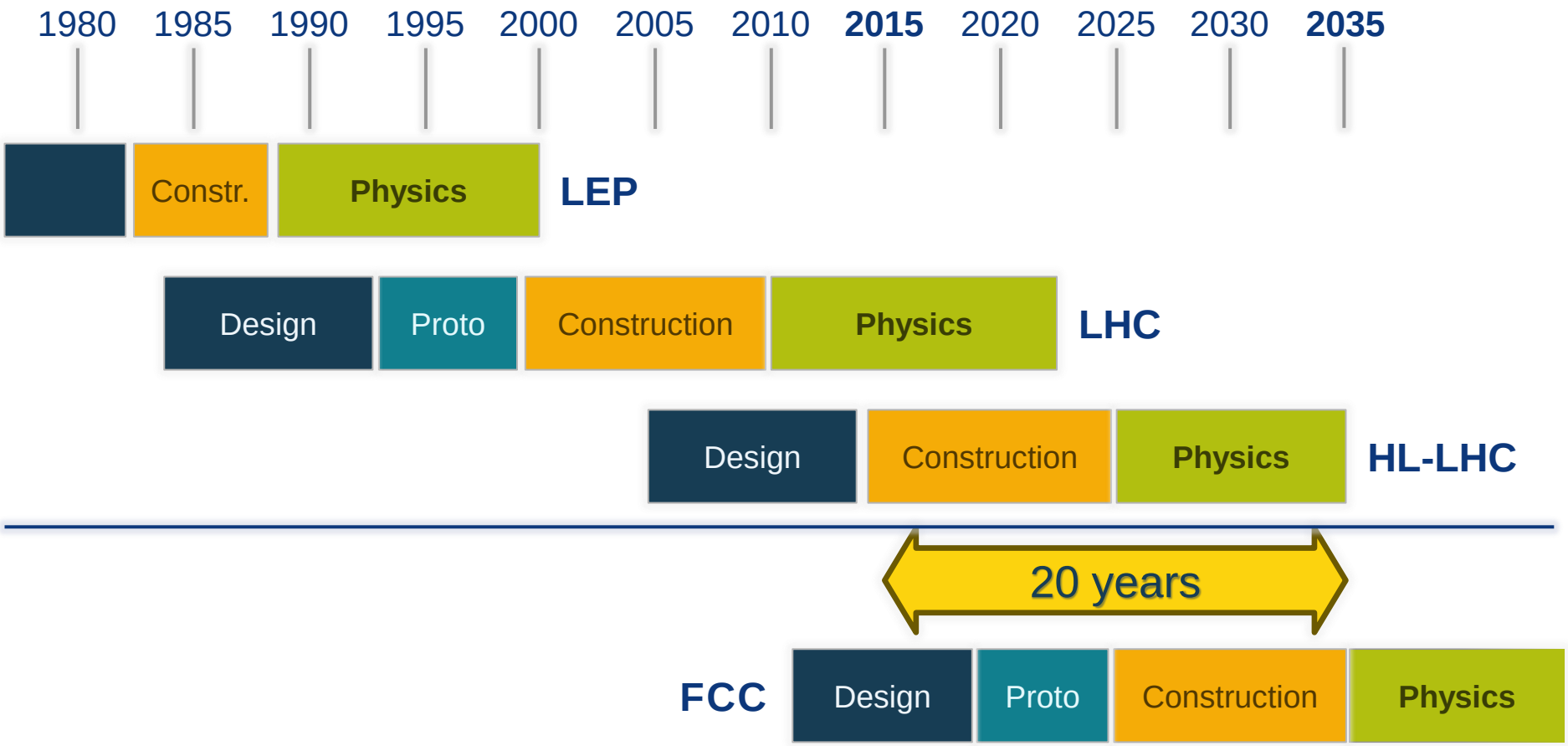


ECFA Detector Panel

A committee to review detector development efforts for future projects

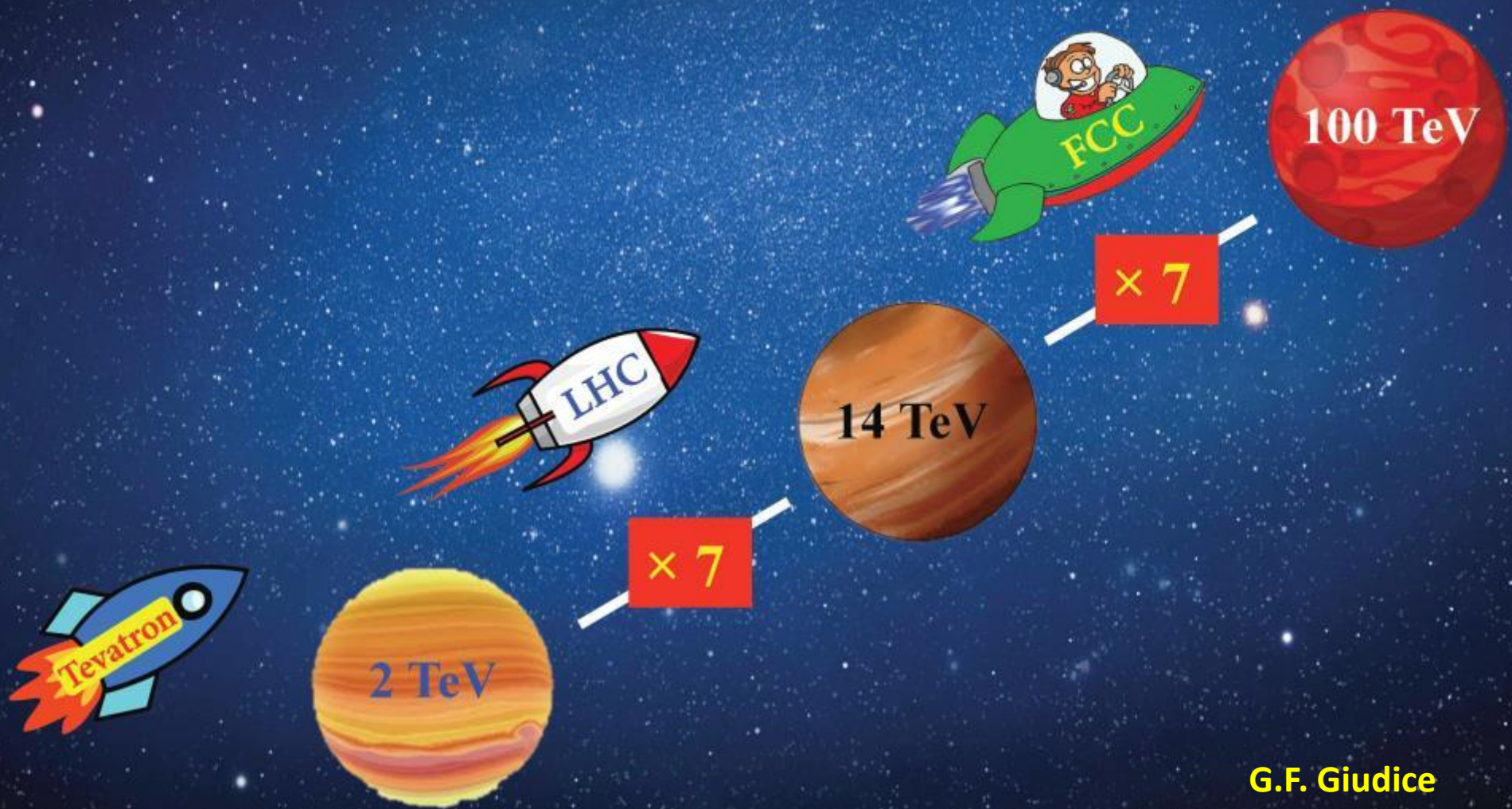
The ECFA Detector Panel is aimed at providing advice on detector development efforts for projects in their preliminary and preparatory phases. It receives R&D proposals on request by research communities, laboratories, institutions, individual authors and bodies such as science funding agencies. It appoints experts charged to evaluate them and make recommendations. It helps to create coherence of global detector R&D efforts by encouraging synergies between different activities and advising funding agencies on request. It is primarily concerned with large projects, related to accelerator and non-accelerator experiments in the fields of particle and astroparticle physics, involving several institutions and requiring significant resources. It is in particular intended for the review of projects that do not undergo an existing review process elsewhere.

CERN Circular Colliders and FCC



Now is the right time to plan for the period 2035 – 2040
Goal of phase 1: CDR by end 2018 for next update of European Strategy

FCC-hh brings physics to another planet!



G.F. Giudice

Physics prospects

Physics at the FCC-hh

https://twiki.cern.ch/twiki/bin/view/LHCPhysics/FutureHadroncollider

- **Volume 1: SM processes** (238 pages)
- **Volume 2: Higgs and EW symmetry breaking studies** (175 pages)
- **Volume 3: beyond the Standard Model phenomena** (189 pages)
- **Volume 4: physics with heavy ions** (56 pages)
- **Volume 5: physics opportunities with the FCC-hh injectors** (14 pages)

- **Being published as CERN yellow report**

New Chair of the International Steering Committee of the Future Circular Collider Study (ECFA delegate)

Pierluigi Campana
Laboratori Nazionali di Frascati (LNF), Italy

Recent AsiaHEP/ACFA Statement

AsiaHEP/ACFA Statement on the ILC & Circular Electron Positron Collider

- AsiaHEP and ACFA reassert their **strong endorsement of the ILC**, which is in a mature state of technical development. The aim of ILC is to explore physics beyond the Standard Model by unprecedented precision measurements of the Higgs boson and top quark, as well as searching for new particles which are difficult to discover at LHC. The Higgs studies at higher energies are especially important for measurement of WW fusion process, to fix the full Higgs decay width, and to measure the Higgs self-coupling. In continuation of decades of world-wide coordination, **we encourage redoubled international efforts at this critical time to make the ILC a reality in Japan.** The past few years have seen growing interest in a large radius circular collider, first focused as a “Higgs factory", and ultimately for proton-proton collisions at the high energy frontier. **We encourage the effort lead by China in this direction, and look forward to the completion of the technical design in a timely manner**.

CLIC roadmap

2013 - 2019 Development Phase

Development of a Project Plan for a staged CLIC implementation in line with LHC results; technical developments with industry, performance studies for accelerator parts and systems, detector technology demonstrators

2020 - 2025 Preparation Phase

Finalisation of implementation parameters, preparation for industrial procurement, Drive Beam Facility and other system verifications, Technical Proposal of the experiment, site authorisation

2026 - 2034 Construction Phase

Construction of the first CLIC accelerator stage compatible with implementation of further stages; construction of the experiment; hardware commissioning

2019 - 2020 Decisions

Update of the European Strategy for Particle Physics; decision towards a next CERN project at the energy frontier (e.g. CLIC, FCC)

2025 Construction Start

Ready for construction; start of excavations

2035 First Beams

Getting ready for data taking by the time the LHC programme reaches completion

ECFA Statement on the detector R&D activities and physics studies for a future Linear Collider in the context of the European Strategy

ECFA acknowledges the role of the ILC- and CLIC-directed research in this area and the significant technological contributions this effort has already produced. ECFA strongly supports the continuation of this work with an adequate level of funding until a decision on the future direction of the field is taken. In this context collaborative efforts between Europe, USA and Asian countries, especially with Japan, are encouraged.

ECFA encourages the establishment of close links between the linear collider and circular collider communities, to maximise synergies and the use of resources in preparation for the challenges of the future. ECFA recognises that the well-developed linear collider structures and community are assets to the field and should be maintained until a decision on the future direction of the field is taken.

Restricted ECFA meetings

- Oslo, NO 7/8 October, 2015
- CERN 20 November, 2015
- Zürich, CH 1/2 April, 2016
- Lund, SE 20/21 May, 2016

- *(Turkey, cancelled)*
- *Athens, GR 30 September, 2016*

Plenary ECFA meetings

- CERN, 19/20 November, 2015
- Gran Sasso, 30 June/1 July 2016
  https://indico.cern.ch/event/537088/

- *100th at CERN, 24/25 November, 2016*

Member countries **midterm reports**:

- Spain
- Romania
- Italy
- Poland