



## Saturday in short

Saturday afternoon the European Committee for Future Accelerators (ECFA) and the EPS had a joint session. Some of the future challenges were discussed and the impact of the evolution of the technology due to the accelerator physics was presented. One of the major challenges that High Luminosity LHC has to face is the enormous amount of data that has to be managed. A similar amount of data will be collected by the Square Kilometer Array (SKA). The data volume expected will be larger than that of social media, therefore physicists will have to invent a technology to manage big data well in advance respect to the commercial world. The technologies developed by physicists to perform the research have often become a tool in the everyday life. For example the progress performed by the treatments of the cancer by using the hadron accelerators was presented. Impact of particle physics on medical applications and pixel detectors for medical imaging and other application were discussed. Another example of technology derived from the particle physics detectors is the muon tomography. Muon from cosmic rays are used for example to investigate what is inside the containers arriving in harbors. The impact of particle physics in education was also discussed. After focusing on the contributions to precision EWK from low energy experiments, on Saturday the Top and electroweak parallel session jumped into the future. Preliminary studies about the capabilities of future colliders, (hadronic, leptonic or both), have shown a strong path toward potential discoveries either through precision measurement or direct observation. The community needs to find a common theoretical framework for a comparison of the various options, such a SMEFT and in any case there is a lot of work ahead for the theory community to match the precision of the future measurements. The detectors session reported about upgrades of the CMS, ATLAS and ALICE trackers, and of the CMS muon system. Gaseous tracker detectors for ALICE and the g-2 experiment. Future apparatus for future colliders. In the flavour session the experimental and theory status of the muon g-2 parameter have been discussed. The physics of kaons and of the mu to e (gamma) transitions have been summarized together with the future experimental and theoretical perspectives in these sectors. The Quantum Field and String Theory session mainly focused on UV properties of effective field theories, loop-tree duality, strongly coupled models and holography, graviton radiation in transplanckian collisions, exact results and black holes in supersymmetric theories, stringy Yukawas.

## Today's highlights

### Plenary Sessions



### MORNING SESSION

#### Sala Grande, Palazzo del Cinema

The Monday morning plenary session will open with the Prize ceremony. The EPS-HEPP prizes will be awarded to: Erik H.M. Heijne, Robert Klanner, and Gerhard Lutz for their pioneering contributions to the development of silicon microstrip detectors that revolutionised high-precision tracking and vertexing in high energy physics experiments; Rainer Weiss, Kip S. Thorne and Barry C. Barish for their pioneering and leading roles in the LIGO observatory that led to the direct detection of gravitational waves, opening a new window to the Universe; Xin Qian for his key contributions to the Daya Bay Reactor neutrino experiment that led to the measurement of the neutrino mixing angle  $\theta_{13}$ ; Simon Caron-Huot for his ground-breaking contributions to the understanding of the analytic structure of scattering amplitudes and their relation to Wilson loops; Michael Hoch for initiatives highlighting the conceptual and physical beauty of high-energy physics, and the inspirational qualities that are common to both Art and Science; René Brun for his outstanding and original contributions to the software tools for data management, detector simulation, and analysis that have shaped particle and high energy physics experiments for many decades.

The second part of the morning will be dedicated to LHC and the big experiments: LHC status and highlights from ATLAS and CMS will be presented. During last talk H scalar boson measurements will be presented.

## Events

\*Today h.18.00 "Wine&Cheese" will be held at the 3rd floor of the Palazzo del Casinò, Sala Laguna, with a good selection of wine and a fine selection of Italian cheese.

\*The classical concert will be held at 21.00 at Palazzo del Casinò, Sala Perla. Check availability at the registration desk.

## People

Click on the pictures for videos and more multimedia contents.



Interview with Halina Abramowicz, ECFA Chair



Interview with Justine Serrano, IN2P3 and LHCb experiment

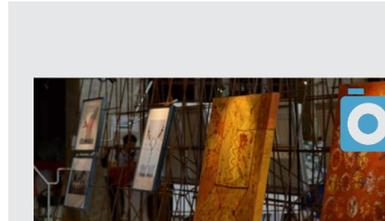


### AFTERNOON SESSION

#### Sala Grande, Palazzo del Cinema

The afternoon plenary session will open with the presentation of the status and perspectives of GW detection. Interplay between the Higgs and cosmology, SM theory and measurement, top quark physics and the information paradox will be presented.

## Photo Shots



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<http://eps-hep2017.eu/>

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Istituto Nazionale di Fisica Nucleare

## THE BAR AT THE BEGINNING OF THE UNIVERSE

LUCA RALLI

