


#EPSHEP2017
#PhysicsInVenice

Friday 07 July 2017

Yesterday in short


The EPS HEP 2017 opened with a relevant result from the LHCb experiment reported during the QCD session: the observation of Ξ_{cc}^{++} , a new particle containing two charm quarks and one up quark. No deviation from the SM at LHC has been presented during the Higgs session, but now more channels can be probed; observations presented of the $Z \rightarrow b\bar{b}$ channel by ATLAS and CMS. During the Heavy Ions session, the production of quarkonium, heavy flavour and strange hadrons in p-p, p-n and n-n collisions and the first measurements of D-meson and J/ψ production from the LHC Run-2 were reported. Data shown during the Neutrino session start to provide tantalizing hints on the neutrino mass hierarchy and leptonic CP violation. At the DM session WIMP has been constrained by null results from a variety of extremely sensitive direct detection experiments. Results yielding further constraints on these particles show that the road to understanding DM is still not completely paved. Results and performance from the upgraded pixel detectors of LHC experiments have been discussed during the Detectors session, together with ever more intensive CPU usage at trigger level, synchronous data analysis, machine learning techniques. New measurements from D0 and CMS were shown during the Top session, besides new Tevatron combination providing the current best indirect W mass measurement. Discussed in common with the QCD track, featured measurement of the production of single- and multi-bosons plus jets along with theoretical reviews of the QCD and EWK corrections and their interplay. Most recent measurements from LHCb, Belle, CMS, ATLAS and Babar and tensions with the SM were presented during the Flavour physics session.

Today's highlights



COSMOLOGY, DARK ENERGY AND GRAVITATIONAL WAVES

Room Martinelli
Theoretical and experimental perspectives on universe expansion and formation of galaxies; recent experimental results on Gravitational Waves with updates on the status of detectors and on signal searches, multimessenger searches.



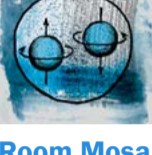
DARK MATTER

Room Mosaici -2 (morning)
Direct detection experiments. New physics in the satellites of Milky Way. DM signals from cosmic rays positrons and electrons. Probing DM through antiprotons and gammas. Detecting rare events.



DETECTOR R&D AND DATA HANDLING

Room Amici
Developments and upgrades of calorimeters for LHC and for space experiments. SiPM techniques. Technological developments for the future of tracking sensors: very fast timing, and diamond technology. Studies and developments of tracking systems.



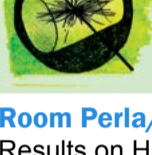
FLAVOUR PHYSICS AND FUNDAMENTAL SYMMETRIES

Room Mosaici -2 (afternoon)
Charm quark physics, namely in the CP violation sector, radiative decays and mixing, windows to new physics. Measurements from LHC and BESIII collaborations. Future perspectives from the Belle II experiment. Most up to date theories on charm meson physics.



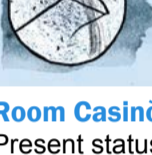
HEAVY ION PHYSICS

Room Mangano
Particle correlations and jet production. Collective expansion dynamics and dependence on particle multiplicity. Jet measurements for insights on the interaction of high-energy quark and gluons within the Quark-Gluon Plasma. Future experimental facilities.




HIGGS AND NEW PHYSICS

Room Perla/Room Welles
Results on Higgs bosons decays ($t\bar{t}H$) and Beyond the Standard Model physics. Heavy particles in dijets of leptonic final states.



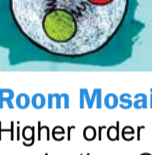
NEUTRINO PHYSICS

Room Casinò
Present status and prospects on the search for sterile neutrinos and their Majorana nature to shed light on the new physics mechanism responsible for neutrino masses. Link between neutrino physics and cosmology.



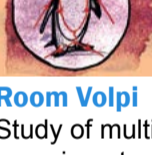
OUTREACH, EDUCATION AND DIVERSITY

Room Amici (afternoon)
Gender and diversity in physics teaching and research. Diversity (of all kind) as a source of wealth for the whole community. Aspects and experiences about the real "inclusion of diversity". Final panel about inclusion plans with more and more limited resources in research.



QCD AND HADRONIC PHYSICS

Room Mosaici-1
Higher order QCD calculations. Measurements of jets production. Charm Quark Mass. Hemisphere mixing. Hadronic contribution to muon $g-2$. PDF of the proton.



TOP AND ELECTROWEAK PHYSICS

Room Volpi
Study of multi boson processes. New results, from experiment and theory, on top quark production, mass and other properties.

Practical information

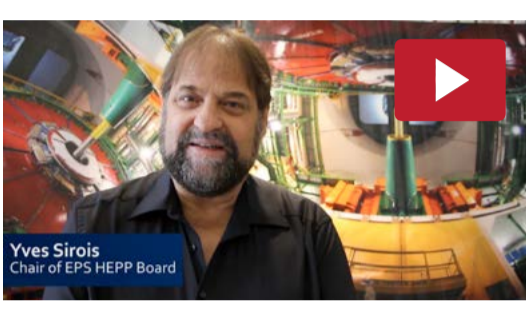
*Free bottles of water are available for all participants (we kindly ask you to take no more than one per person). You'll find them at the entrance of each parallel session room.
*Coffee-break time: avoid long queue at the first floor. There are available coffee points also at the third floor.

Click on the pictures for videos and more multimedia contents.

People



Interview with Guy Wilkinson, former spokesperson of the LHCb experiment at CERN

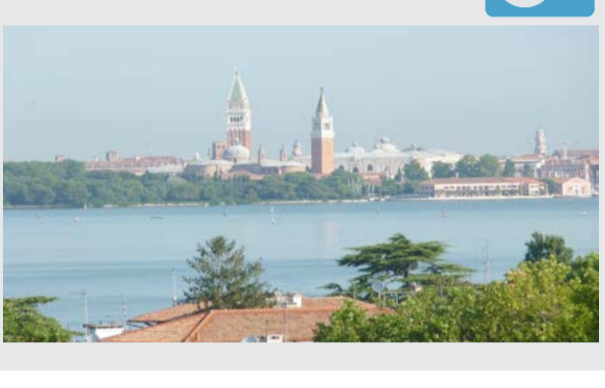


Interview with Yves Sirosis, Chair of the EPS HEPP Board



Interview with Vivek Sharma, University of California San Diego and CMS experiment at CERN

Photo Shots



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

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The EPS HEP 2017 scientific secretaries. The EPS HEP 2017 Local Organizing Committee.



Istituto Nazionale di Fisica Nucleare



THE BAR AT THE BEGINNING OF THE UNIVERSE

LUCA RALLI

