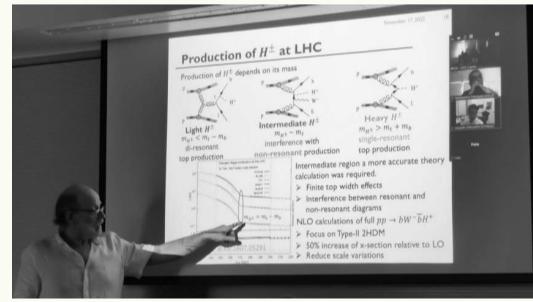


## Fotios Ptochos Promoted to Professor!

Congratulations to Fotios Ptochos for his promotion to the rank of Full Professor, effective November 2022. This promotion recognizes Prof. Ptochos' achievements in scholarship, teaching in physics and research in high-energy physics (HEP), and his overall service to the CDF and CMS Collaborations. He is a Harvard University PhD in physics graduate (1998) and has been active in HEP-research, both in detector development and physics analyses since 1987. In particular, from 1987 to 1988 he worked in the development of a technique to monitor the purity of Liquid Argon (LAr) for the first ever prototype of the ICARUS detector, a technique that was subsequently used in the experiment. From 1989 to 1994 he worked in the characterization of various Tetramethyl liquids as part of a research project to find appropriate warm liquids media for the envisioned calorimeter detectors at SSC. He also worked in the construction, installation and calibration of the Central Muon Extension (CMX) system for the CDF detector. From 1994 to 1996 he developed an algorithm to improve electron identification for the CDF end-plug ECAL based on the information from the calorimeter and hits on the silicon tracker detector. The algorithm led to the development and implementation of the PHENIX tracker system in the CDF-II detector. In the period of 2000–2003, he was the coordinator of the group responsible for the development, installation, maintenance and performance monitoring of the CDF-II Hadronic Calorimeter (HCAL) timing system. For the entire period of the Tevatron Run-II (2001–2011) he served as the coordinator of the CDF central HCAL calibration (CHA and WHA), maintenance and performance group. Since 2004, when he joined the faculty of the UCY Physics Department, he has been involved in the UCY HEP group activities related to the construction and running of the CMS ECAL at CERN. In 2009, he initiated the involvement of the group in the activities related to the CMS tracking detector. He was also involved in the development of the dual-readout calorimetry concept in a total absorption HCAL for future linear-collider experiments.

Professor Ptochos has led numerous physics analyses, spanning from precision measurements on properties of heavy flavour quark production and their use as probes for searching for the SM and SUSY Higgs bosons, to searches for BSM physics including SUSY, extra dimensions and other exotic processes. He has tremendous experience in heavy flavour tagging techniques and algorithms, tau-lepton identification techniques and new physics model building. He was the first ever recipient of the “Fermi National Accelerator Laboratory Fellowship” and has co-coordinated multiple research program funded primarily by the European Commission (EC) via Marie Skłodowska-Curie Actions, the Cyprus Research Promotion Foundation (RPF) through Didaktor or Excellence Hubs programs, the European Regional Development Fund, and UCY. Professor Ptochos is the author and co-author of more than 1700 publications in refereed scientific journals and a member of the editorial group in charge for producing the education material for the entire Cyprus Secondary Education. In addition, he has been the supervisor of the research activities of six postdoctoral fellows, five PhD and eleven MSc students, as well as the theses projects of more than 20 undergraduate students.



## Physicists Find Elusive Particle Seen as Key to Universe

Results are presented from searches for the standard model Higgs boson in proton–proton collisions at and 8 TeV in the Compact Muon Solenoid experiment at the LHC, using data samples corresponding to integrated luminosities of up to 5.1 fb<sup>-1</sup> at 7 TeV and 5.3 fb<sup>-1</sup> at 8 TeV. The search is performed in five decay modes:  $\gamma\gamma$ , ZZ,  $\tau^+\tau^-$ , and  $b\bar{b}$ . An excess of events is observed above the expected background, with a local significance of 5.0 standard deviations, at a mass near 125 GeV, signalling the production of a new particle. The expected significance for a standard model Higgs boson of that mass is 5.8 standard deviations. The excess is most significant in the two decay modes with the best mass resolution,  $\gamma\gamma$

and ZZ; a fit to these signals gives a mass of  $125.3 \pm 0.4(\text{stat.}) \pm 0.5(\text{syst.})$  GeV. The decay to two photons indicates that the new particle is a boson with spin different from one.



## Master of Masterclasses ...

Another particle physics masterclass was organized at the University of Cyprus by the Department of Physics. This year the interest in this event was unique and particularly encouraging. The day “Practical Experience with data analysis from CERN” was organized by Professor Fotios Ptochos for the 8<sup>th</sup> year in a row and took place within the framework of the International Particle Physics Outreach Group (IPPOG) effort with the aim of informing the general public and especially you students about the research that is carried out not only in CERN but also in the wider field of Particle Physics. The event took place on Saturday 07 March 2020 at the University of Cyprus Campus between 9:00 - 17:00. It included lectures about the world of elementary particles, detection methods, and the technology developed starting with basic research in both this and related fields of physics. Students had a unique opportunity to analyze data from proton-proton collisions, as recorded by the CMS detector

at CERN’s Large Hadron Collider (LHC). They discussed their findings with students from other countries as well as scientists at CERN through a video conference, during which they also had the opportunity to address questions to CERN scientists.

