Thursday 17th November, 2022
Today's Paper

The 2022 Chronicle

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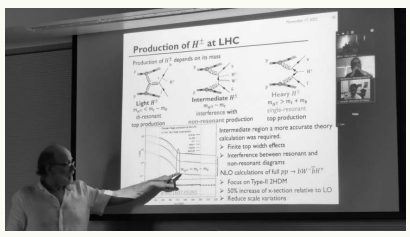
Fotios Ptochos Promoted to Professor!

Congratulations to Fotios Ptochos for his promotion to the rank of Full Professor, effective from Thursday 17th 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-researchsince 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. 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 the Superconducting Supercollider (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 PHOENIX 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 1850 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. He has been the supervisor of the research activities of 6 postdoctoral fellows, 5 PhD and 11 MSc students, as well as 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^1 at 7 TeV and 5.3 fb^1 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.