

I. Curriculum Vitae

Spyros Eust. Tzamarias

1. Studies

- 1975 – 1979 Undergraduate studies in Physics at the Physics Department of the University of Thessaloniki.
1979 – 1981 Postgraduate Studies and Research in Archaeometry and Authenticity of Ancient Potteries at the Laboratory of Atomic and Nuclear Physics of the Aristotle University of Thessaloniki
1981 – 1983 Postgraduate studies in Fundamental Physics at the CNR (NCSR) “Demokritos”, Research at the Physics Laboratory of the University of Athens and the European Centre for Nuclear Research CERN.
1983 – 1986 Doctoral research at FERMILAB USA (FERMI National Accelerator Laboratory - FERMILAB)

2. Academic Career

- 1979 – 1981 Postgraduate Scholarship from the Volkswagen Foundation.
1981–1986 Research Associate at the University of Athens, Guest Scientist at FERMILAB
1986–1989 Research Associate and Senior Research Scientist at the Northwestern University USA, Research Coordinator at the E705 FERMILAB experiment.
1989 – 1992 CERN Research Fellow, Research Team Convener in the DELPHI experiment of CERN. Visiting Senior Scientist at the Bologna University.
1992 – 1996 Senior Chadwick Fellow in the Physics Department of the University of Liverpool. Head of research group. Research Team Convener in the DELPHI experiment and representative of the UK DELPHI groups.
1996 - 2000 Senior Researcher at the Institute of Nuclear Physics (INP) at the NCSR DEMOKRITOS. Research group leader. Coordinator of the Laboratory for Data Acquisition-Processing and Analysis. Director of Postgraduate Studies of INP and member of the Education Board of DEMOKRITOS. Member and president of the INP Scientific Advisory Board.
2000 – Professor in the School of Science and Technology of the Hellenic Open University (HOU). Head of the Particle and Astroparticle Physics Research Group. Director of the Physics Laboratory. Academic Director of the HOU undergraduate program «Studies in Natural Sciences» . Academic Director (2005-2008) of the HOU postgraduate programs «Advanced Studies in Physics» and “Master in Teaching Natural Science” .
2000-2004 Coordinator of the DAQ and Physics analysis of the NESTOR experiment. Member of the executive board of the NESTOR collaboration.
2001-2005 Dean of the HOU Faculty of Science and Technology.
2005- Coordinator of the Hellenic Lyceum Cosmic Observatories Network. Founding member of the research/education consortium of European Universities and Research Institutes EUROCOSMICS.
2007-2009 President of the Hellenic Association for the Study of High Energy Physics, Member of the GSRT committee for CERN and the GSRT committees for neutrino Astroparticle Physics.
2005-2012 Member of the KM3NeT Strategic Project Board
2014- Professor in the Department of Physics of the Aristotle University of Thessaloniki
2015-2020 Director of the Laboratory of Accelerator Physics and Instrumentation of the Aristotle University of Thessaloniki
2016- 2020 Director of the Graduate Program “Subatomic Physics” of the Aristotle University of Thessaloniki
2020- Director of the Laboratory of Nuclear and Particle Physics of the Aristotle University of Thessaloniki

3. Contribution to the International Collaborative Research Effort

He has been actively involved in the research activities of major international experimental collaborations and he contributed, a) in the development of innovative instrumentation and experimental methodology, b) in the design and construction of electronic control systems for particle detectors and electronics for the selection and processing of experimental information, c) in developing methods and software for accurate simulation of detectors and physical processes, d) in developing methods of signal processing, algorithms for data selection, particle identification, object (track, vertex, shower, jet) reconstruction and methods for physics analysis. He has served as coordinator of international research teams in the above experiments. Specifically, he participated actively in large, international Particle and Astroparticle Physics experiments, namely in the R808 experiment at CERN, in the design

of the Halleakala, gamma-ray telescope, in the experiments E537 and E705 and in the design of the E771 at Fermilab, in the DELPHI experiment at LEP and LEP2 of CERN and in the ATLAS experiment at LHC CERN. He has actively participated in the Astroparticle Neutrino Physics pilot project "Nestor" and in the effort of the European Collaboration KM3NET to deploy a large neutrino telescope in the Mediterranean. He also participated in international R&D projects to design silicon detectors and to study the characteristics of silicon detectors, resistant to high radioactive doses (ATLAS Forward Tracker and ROSE) as well as in the design of large Astroparticle detectors (HELAZ - solar neutrinos, dark matter). He actively involved in R&D projects and the construction, by the Greek industry, of DAQ electronic systems for the CMS detector (CMS-TriDAS).

He has contributed to the international research effort with studies on the production dynamics of charmonium states in hadronic interactions, the distribution functions of quarks and gluons in nucleons in heavy nuclei, the production and decays of Z^0 and W^+W^- at LEP and LEP2, the heavy quarks hadronization and decays. He has contributed with original work to QCD studies, to precise measurements of electroweak parameters and to searches for new particles. Currently, he is advancing statistical methods, in the framework of EFT description of diboson production, for searching for New Physics at LHC with the ATLAS detector.

He has also contributed significantly to Astroparticle Physics, especially in the proof of principle of deep-sea neutrino telescope and he had a major contribution to the KM3NeT conceptual and technical design as well as to the development of novel observation strategies and physics measurements. He has initiated and coordinated the ASTRONEU project for utilizing the detection of Extensive Air Showers in neutrino telescope.

The last years is actively contributing in the design and construction of detectors with very precise timing properties (PICOSEC-Micromegas with ~ 25 ps timing resolution of MIPs) as well as he advanced modeling methods for gaseous detectors with precise timing capabilities. He is focusing in developing detector instrumentation based on the PICOSEC-Micromegas concept that can be utilized in experimental facilities targeting to New Physics, as the innovative "Enhanced Neutrino BEams from kaon Tagging" ENUBET ERC (G.A. n. 681647) and ENUBET/NP06 (CERN Neutrino Platform) project. In parallel, he has initiated a fruitful collaboration with the Joint Research Center of the European Commission (Directorate G.2 – Nuclear Safety and Security) towards the utilization of the thin-gap Micromegas technology to neutron detection.

He has organized and supervised research teams in the institutions that he served (CERN, Univ. Of Liverpool, NCSR "Demokritos", HOU, AUTH), which produced important scientific work at CERN, in the Nestor experiment and in KM3NeT. He has contributed significantly to the organization of doctoral studies in NCSR "DEMOKRITOS", HOU and AUTH by establishing institutions and processes as well as developing research infrastructure and staff. He established the Data Acquisition-Processing and Analysis Laboratory in INP DEMOKRITOS, the HOU Physics Laboratory (<http://physicslab.eap.gr>), the Laboratory for Acceleration Physics and Instrumentation in AUTH and the postgraduate program "SubAtomic Physics".

4. Contribution to Education

He has taught numerous undergraduate and graduate courses at the Athens University, the University of Liverpool, in Democritus-NTUA graduate school. HOU and AUTH. He has supervised many MSc-diploma and 15 doctoral theses, at CERN, the University of Liverpool, in Demokritos, AUTH and HOU. He is the author of one postgraduate textbook (Statistical methods for experimental data analysis,), one undergraduate textbook (General Physics), one modern-physics laboratory guide, a series of lecture notes and postgraduate digital books for physics teachers (Quantum Mechanics, Modern Physics, Experimental Data Analysis)

In his capacity as Academic Director he established, organized and directed the undergraduate program "Studies in Natural Sciences" and the postgraduate programs " Advanced Studies in Physics " and " Master in Teaching Natural Science" in HOU and the postgraduate program "Subatomic Physics" in AUTH.