

From the Geosphere to the Cosmos: ASPERA Workshop

CV

ApP and associated sciences at LNGS

Lucia Votano

lucia.votano@lngs.infn.it

Lucia Votano graduated in physics at the University La Sapienza of Rome with full marks and “lode” in 1971.

She became staff research scientist in 1975 at the ENEA Frascati Laboratory and in 1976 at the INFN Frascati National Laboratory (LNF).

Senior Researcher in 1988 and Research Director of INFN (Istituto Nazionale di Fisica Nucleare) in 2000, Lucia Votano is Director of the Gran Sasso National Laboratory of INFN, the world's largest underground laboratory for astroparticle physics, since September 2009.

As an experimental particle and astroparticle physicist, she has been active at LNF, CERN, DESY and Gran Sasso Laboratory (LNGS), performing physics studies as well as constructing and running large detector systems and acting as the leader of a LNF group of physicists, engineers and technicians. LV is presently active in the field of experimental astroparticle physics for the neutrino oscillation search with the OPERA experiment in the CNGS beam from CERN to Gran Sasso.

LV started the scientific experimental activity performing experiments using bubble chambers: she participated in a photoproduction experiment using the 30 cm bubble chamber operating at the Frascati electron-synchrotron and then studied antiproton annihilation and interactions in the 2m hydrogen bubble chamber at CERN. The construction at LNF of the PEPR (Precision Encoding and Pattern Recognition), an instrument used for the automatic scanning of the bubble chamber pictures, resulted in a broadening of the activity towards interdisciplinary medical studies performed using this instrument.

Starting in 1979 LV worked for the WA44 experiment at CERN aimed to the search for free quarks in high-energy neutrino interactions and exploiting the performances of a big avalanche chamber for dE/dx measurements.

At the CERN ISR, using the Split Field Magnet facility she has performed studies on the properties of multihadron systems produced in (pp) collisions at a low pT and on the production of Charm and Beauty particles in (pp) collisions at $\sqrt{s} = 62$ GeV using an electromagnetic calorimeter designed and built by the LNF group.

Then LV participated to the ZEUS experiment at DESY for the study of (ep) interactions at very high energy, contributing to the apparatus with the design and construction of planes of limited streamer tubes for the forward muon spectrometers.

Around 1985 her main interest turned to astroparticle physics and she started working for the LVD experiment at LNGS, designed to detect neutrinos from gravitational stellar collapses within our entire Galaxy and to measure the penetrating component of cosmic rays.

LV has also been a member of the ROG collaboration that operates the ultra cryogenic gravitational wave antenna NAUTILUS at LNF. She has contributed providing the antenna with a cosmic-ray veto system, which has been capable of detecting for the first time the effects of the interactions of high-energy showers with the antenna.

Afterwards LV joined the OPERA experiment, aiming to observe the appearance of $\nu\tau$ in the essentially pure $\nu\mu$ CNGS beam produced at CERN and to provide the definitive proof of $\nu\mu \Rightarrow \nu\tau$ oscillation in the range of atmospheric neutrinos. She had a leading role in the final definition of the apparatus and in the design, construction and setting up of large parts of the apparatus. She also had managerial tasks as the Chairperson of the Collaboration Board and Resource Manager. Presently OPERA has published the measurement of the first $\nu\tau$ candidate.

Formerly:

Member of INFN GR II (Astroparticle Physics) Scientific Committee.

Responsible of the Scientific Information Service of LNF.

Director of the Research Division of the LNF for two mandates up to 2004,

Member of the Peer Review Committee of ApPec and of the ASPERA Roadmap Committee.

Presently member of the ASPERA SAC.
