

NEUTRINO MIXING AND BRUNO PONTECORVO

I have been reading with great pleasure the beautiful volume edited by SIF: THIRTY YEARS OF GRAN SASSO, in honour of Antonino Zichichi. This volume contains an impressive series of articles and recollections about the Gran Sasso underground laboratory of INFN, where neutrino physics has always been and still is the main line of research. The results from the BOREXINO experiment and those from the CNGS (CERN to Gran Sasso) neutrino-beam OPERA experiment, together with the start of the ICARUS experiment, have newly captured the attention of the physics community the world over and the problem of neutrino mixing has again come to the limelight.

Recently, on the major Italian daily press, the credit for the mixing of the 3rd-family neutrino with neutrinos from the other two families has been attributed to my father Bruno Pontecorvo. In fact his original idea, back to the late Fifties, when only one neutrino (ν_e) was known, concerned neutrino-antineutrino oscillation and became neutrino-flavour mixing a few years later when the second neutrino (ν_μ) was discovered.

It was in 1964, at the Dubna Conference, that Zichichi presented the first results of his PAPPLEP experiment at CERN to search for a 3rd heavy lepton with its own neutrino by detecting acoplanar electron-muon pairs. He discussed his experiment with Bruno who, I remember, already at that time was impressed by Zichichi's idea. This idea is at the origin of the CERN to Gran Sasso neutrino beam, included in the original Gran Sasso Project that Zichichi presented to the Italian Government in 1979, as duly reported in THIRTY YEARS OF GRAN SASSO. To study the oscillation of the 3rd-family neutrino into neutrinos from the other two families was first proposed by Nino Zichichi, not by Bruno who, in many occasions along the years, expressed his strong support to the Gran Sasso Project and its author.

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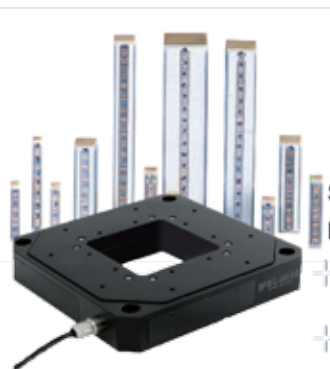
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