Marcello Conversi (centre), with (left) Ettore Fiorini and Emilio Zavattini.

Marcello Conversi 1917-1988

Less than a year after his 70th birthday had been marked by a special seminar in Rome, the ingenious Italian experimenter Marcello Conversi died in September. He was best known for his historic cosmic ray experiment with Ettore Pancini and Oreste Piccioni in 1946 which showed that the 'mesotron' particle seen in cosmic rays did not behave like a strongly interacting nuclear particle, and had to be something very different.....

By the outbreak of the Second World War, Italian physics had been impoverished by the earlier departure of illustrious figures (Fermi, Segré, Pontecorvo, Rasetti, Rossi, Wick, Bernardini) and the premature death of Ettore Majorana. Of the celebrated Rome school of the 1930s, only Edoardo Amaldi remained.

Muted, the physics effort at Rome continued throughout the War, despite many great difficulties. In 1943 Conversi and his colleagues wisely decided to move their apparatus from the university campus to a site near the Vatican less subject to air raids.

With Gilberto Bernardini, he developed crude but effective magnetic lenses to separate positively and negatively charged cosmic ray particles, and in a pioneer application of microsecond electronics with Piccioni, he used 'delayed coincidences' to correlate stopping particles with their decay products.

This work paralleled some of the pioneer studies being done elsewhere in the world, but unknown to the Italians in view of wartime communications problems. One such result was that some cosmic ray particles stopping in iron nevertheless underwent radioactive decay, with a lifetime of a few microseconds.

Switching from iron to graphite absorbers, the 1946 experiment dramatically showed that the negatively charged component of cosmic rays decayed radioactively rather than being captured by the graphite. The theories at the time held that the penetrating cosmic ray particles were the mesons postulated by Yukawa as the carriers of the strong nuclear force, suggesting that the negative particles should immediately be captured by nuclei without decaying. However the Rome experiment clearly showed that the negatively charged cosmic particles (what we now call muons) behaved very differently. Continuing the great tradition of Fermi, Italian physicists had written another page of weak interaction physics history.

Later his influential school, from 1950 at Pisa and from 1958 at Rome, produced many famous Italian particle physics names (among them Paolo Franzini, Marcello Cresti, Carlo Rubbia, Italo Mannelli and Luigi de Lella), and was a continual powerhouse of new ideas.

In the 1950s, with Adriano Gozzini, he introduced the flashtube idea, a precursor of the spark chamber, which went on to become a standard tool in particle and cosmic ray physics. In the early 1970s, he showed how the relatively delicate neon-filled glass flashtubes could be replaced by inexpensive extruded plastics, giving the technique a new lease of life.

At Pisa, he also founded what was then called the Centro Studi Calcolatrici Elettroniche, where CEP, the first Italian electronic computer, was built in the early 1950s. For this work he received the gold medal of the President of the Italian Republic in 1961.

At CERN, Conversi was a member of the Scientific Policy Committee from 1969-1975, becoming its Vice-President. From 1959, he participated in a series of quests at the SC synchro-cyclotron for 'forbidden' processes in weak interactions. When the new SPS proton synchrotron began operations in 1976, he played a prominent role in searches for short-lived particles using a stack of nuclear emulsion coupled to the BEBC bubble chamber.