Maurice Jacob 1933–2007

Maurice Jacob, for many years a theorist at CERN, passed away suddenly on 2 May after a heart attack, following a long struggle with illness. With his death, CERN has lost one of its leading figures, the French physics community has lost one of its pillars, the European particle-physics community has lost one of its most dedicated servants, and his many friends have lost one of their staunchest supports.

Originally from Lyon in France, Maurice started his physics studies in 1953 at the École Normale Supérieure in Paris. He began his research career at Saclay and, while still a PhD student, he continued brilliantly during a stay at Brookhaven. It was there in 1959 that Maurice, together with Giancarlo Wick, developed the helicity amplitude formalism that is the basis of many modern theoretical calculations. Maurice obtained his PhD in 1961 and, after a stay at Caltech, returned to Saclay. A second American foray was to SLAC, where he and Sam Berman made the crucial observation that the point-like structures (partons) seen in deep-inelastic scattering implied the existence of high-transverse-momentum processes in proton–proton collisions, as the ISR at CERN subsequently discovered.

In 1967 Maurice joined CERN, where he remained, apart from influential visits to Yale, Fermilab and elsewhere, until his retirement in 1998. He became one of the most respected international experts on the phenomenology of strong interactions, including diffraction, scaling, high-transverse-momentum processes and the formation of quark–gluon plasma. In particular, he pioneered the studies of inclusive hadron-production processes, including scaling and its violations. Also, working with Ron Horgan, he made detailed predictions for the production of jets at CERN’s proton–antiproton collider. The UA2 and UA1 experiments subsequently discovered these. He was also interested in electron–positron colliders, making pioneering calculations, together with Tai Wu, of radiation in high-energy collisions.

Maurice was one of the scientific pillars of CERN, working closely with experimental colleagues in predicting and interpreting results from successive CERN colliders. He was indefatigable in organizing regular meetings on ISR physics, bringing together theorists and experimentalists to debate the meaning of new results and propose new measurements. He was one of the strongest advocates of Carlo Rubbia’s proposal for a proton–antiproton collider at CERN, and was influential in preparing and advertising its physics. In 1978 he organized the Les Houches workshop that brought the LEP project to the attention of the wider European particle-physics community. He also organized the ECFA workshop at Lausanne in 1984 that made the first exploration of the possible physics of the LHC. It is a tragedy that Maurice has not lived to enjoy data from the LHC.

From 1982 to 1988, Maurice led the CERN Theoretical Physics Division, and was greatly involved in managing the laboratory. He was always scrupulous in his responsibilities, and conscientious to a fault. Colleagues from this time will always remember his human understanding and his dedication to ensuring that they could progress in their research without being troubled by the administrative burden that he shouldered so unobtrusively. His cameo performances in the Theory Division Christmas party play were always greatly appreciated, particularly the year when he appeared as a blue-faced Schtroumpf.

In parallel with his activities and responsibilities at CERN, Maurice also found the time and the energy to play prominent roles in the French Physical Society, of which he was president in 1985, the European Physical Society, of which he was president from 1991 to 1993, and in scientific publishing. He was for many years an enthusiastic supporter of European physics journals, particularly those of North-Holland, now Elsevier. He was in particular an energetic and supremely fair editor of Physics Letters B, and founding editor of Physics Reports. He also provided valued editorial advice to Physics Today, CERN Courier (for which he was a prolific photographer) and the World Scientific Publishing Company. Maurice was also a prolific speaker and writer about particle physics, capable of engaging and inspiring the general public.

During the 1990s, Maurice selflessly placed his intimate knowledge of the European physics scene at the service of CERN by assisting then director-general Chris Llewellyn Smith as his advisor for relations with the member states. During a difficult period while approval and funding for the LHC were being secured, he travelled energetically, consulted widely and served the particle-physics community assiduously as an invaluable contact between the organization and its many stakeholders. He was also appreciated greatly as a scientific advisor to ESA.

After retirement, Maurice returned to relative tranquility in the Theory Division. Unfortunately, he was struck by a chronic and debilitating illness that made it hard for him to enjoy to the full his richly deserved retirement. Nevertheless, he maintained his equanimity and curiosity, and his active interest in physics and CERN matters in general.

During his energetic career, Maurice received many honours, including the Silver Medal of the French CNRS in 1967. He was elected a foreign member of the Swedish Academy, a corresponding member of the French Academy of Sciences, a member of the Academia Scientiae, and an honorary member of the Physics and Natural History Society of Geneva. He was also appointed a chevalier of the French Légion d’Honneur.

Maurice’s many friends around the world valued immensely his sincere kindness, his lucidity, his energy, his self-effacing nature and his inexhaustible willingness to help, advise and assist them. We will miss him sorely. Our thoughts at this time are with his wife Lise, whom he met in the early 1950s soon after he began his studies in Paris, as well as their children and their families.