

Ferenc Niedermayer 1945–2018



Ferenc Niedermayer, who played a prominent role in the development of lattice quantum chromodynamics (QCD), died on 12 August, aged 73.

Ferenc was born on 6 March 1945 in Budapest, Hungary. After obtaining a master's degree from Leningrad State University in 1968, where he met his future wife Tamara, he received his PhD in 1971 from Eötvös University in Budapest. Following a three-month stay at CERN's theory division in 1979, he worked at the Joint Institute for Nuclear Research in Dubna in 1980–1985 and at the University of California in San Diego in 1985–1986. Since 1989, he was a member of the Institute for Theoretical Physics at the University of Bern. In addition, he was a regular long-term visitor at the Max Planck Institute in Munich and at Eötvös University.

Ferenc was famous for possessing an extraordinarily broad knowledge of physics. During the early stages of his career, he worked on a variety of phenomenological topics, ranging from polarised lepton–hadron scattering to J/ψ production in hadron–nucleus collisions and to neutrino oscillations. When he came to Bern, Ferenc began to work in a more theoretical direction, particularly on the novel discipline of lattice field theory – the study of lattice discretisations of quantum field theories such as QCD. Over the years, he obtained numerous results of lasting value in this and related fields, some of them in collaboration with his old friends János Balog, Péter Hasenfratz and Peter Weisz. One famous result, which he obtained in collaboration with Hasenfratz and Michele Maggiore and made use of the intricate Wiener–Hopf technique, was the derivation of the mass gap of the two-dimensional $O(3)$ model from its conjectured exact S-matrix. This model is often used as a prototypical solvable theory displaying many QCD-like features. Another celebrated result, which he achieved in collaboration with Hasenfratz and Victor Laliena and made use of the famous Ginsparg–Wilson relation, was the rigorous establishment of the Atiyah–Singer index theorem in a fully non-perturbative framework. This theorem plays a key role in the understanding of the vacuum structure and chiral symmetry properties of QCD.

After his retirement in 2010, Ferenc continued to work vigorously, both with new generations of students at Bern but in particular in a fruitful collaboration with Peter Weisz. This work continued and even accelerated after he received a diagnosis of liver cancer a few years ago. Ferenc talked openly about his illness. He always had a wonderful attitude towards work and life in general, and it was very inspiring to see how efficiently he spent his time.

Towards the end of his life, Ferenc visited Hungary to bid farewell to many old friends and colleagues. He died peacefully a few days after returning to Bern. Many of his friends and colleagues, both from Switzerland and Hungary, honoured a great scientist and a wonderful man at his funeral.

His friends and colleagues.

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