Boris Zupnik 1945–2015

Boris Zupnik, an eminent Russian theorist who was a leading researcher at the Bogoliubov Laboratory of Theoretical Physics (LTP) of JINR in Dubna and professor at Dubna University, passed away on 20 March after a few months of serious illness.

Zupnik

Boris Zupnik was born on 12 June 1945 in Samarkand, Uzbekistan, where his Jewish family had been evacuated from Dniepropetrovsk, Ukraine, in 1941. Following the war, the family returned to their city, and Boris went on to graduate from the Dniepropetrovsk State University in 1968. He then joined the LTP in Dubna as a postgraduate. At the time his supervisor, Victor Isaakovich Ogievetsky, was interested in chiral dynamics, a new approach to low-energy strong interactions. Together with Ogievetsky, Boris obtained first-class results in the field. He stood out as a promising young researcher with solid mathematical background and a deep sense for the beauty of theoretical physics.

In 1972, Boris brilliantly defended his PhD thesis, but despite the best efforts of his supervisor, he was not admitted to the LTP staff. He spent the next 20 years as a researcher at the Institute of Nuclear Physics in Ulugbek near Tashkent, and as a lecturer at the Tashkent State University. There, he continued his research and taught several talented PhD students.

Boris maintained his close contacts with Ogievetsky's group at the LTP, where supersymmetry became the centre of interest. The superfield approach to super-Yang–Mills and supergravity became, for Boris, his favorite research topic. He made a particularly significant contribution to the new harmonic superspace method developed in Dubna in the early 1980s, and was among the first to generalize it to other dimensions. One of his most striking results was the beautiful closed form for the harmonic superspace action of the N = 2, 4D (or N = (1,0), 6D) super-Yang–Mills theory. It is now called "Zupnik's action".

After defending his habilitation thesis in Dubna in 1991, Boris finally joined the LTP in 1994 – by then named after Nicolai Bogoliubov – and successfully continued his investigations of superfield theories in diverse dimensions. His main achievements are

the N = 3 Born–Infeld theory, and the new superfield formulations of the superconformal N = 3, 6, 8 Chern–Simons theories, among others. In the last year of his life, Boris kept searching for the ultimate off-shell formulation of the renowned N = 4 super-Yang–Mills theory. This challenging problem – still unsolved – was always among his top research priorities.

Boris had a warm and friendly personality, always open to new ideas. He chose his research topics independently and wrote many excellent papers without co-authors. He was also a very modest person, with scientific and moral authority among theoreticians worldwide. He spent much time educating young physicists at the International University in Dubna. He was very dedicated to his family, and a respected father and grandfather.

The death of Boris Zupnik is a great loss for his friends and colleagues, and for the whole world of theoretical physics.

• *Friends and colleagues of Boris.*