

Andrei Anatolyevich Grib, on the 75th Birthday

DOI: 10.1134/S0202289314010125



March 28, 2014 is the 75th birthday of Andrei Anatolyevich Grib, Professor of the Department of Theoretical Physics and Astronomy of the Herzen State Pedagogical University of Russia, Dr. of Science (Physics and Mathematics), Academician of the Russian Academy of Natural Sciences.

A.A. Grib was born in the family of Anatoly Andreyevich Grib, Prof. of Mathematics of Leningrad State University. A.A. Grib's grandfather, Andrei Fomich Grib, was a teacher of mathematics in a nonclassical secondary school in the city of Kovno (now Kaunas, Lithuania). During the Leningrad blockade, Anatoly Andreyevich was able to take his wife, Nina Nikolaevna, and his little son Andrei to

the Caucasus along the Volga river. Unfortunately, in late August of 1942 the family got stuck in Stalingrad (now Volgograd), which was at that time subject to one of the hardest bombardments of World War II by the German aviation. According to Andrei Anatolyevich, this bombardment, when the whole city was in fire, is the first thing that he remembers. Later on the family got to Saratov, the city where the whole Leningrad University had been evacuated, including the Mechanics and Mathematics Faculty, where Anatoly Andreyevich was Deputy Dean.

Subsequently, a significant part of A.A. Grib's life was connected with Leningrad University. He graduated from its Physics Faculty in 1961 and became a post-graduate student of the Department of Theoretical Physics, headed at that time by Academician V.A. Fock, the person who influenced his co-workers not only by his articles but even by his very presence. In the late 1950s and in the 1960s, to a large extent due to V.A. Fock's influence, the University was visited by such outstanding physicists as Paul Dirac, Julian Schwinger, Roy Glauber, Leon Rosenfeld, Gleb Watagin, John Wheeler and others, who delivered their lectures at the Physics Faculty.

The main activities of A.A. Grib in the 60s were focused around the concept of spontaneous symmetry breaking, which was reflected in a number of his articles and in his book [1], where the Higgs mechanism was presented for the first time in the Russian literature. A.A. Grib defended his PhD thesis in 1969, under the supervision of Prof. Yu.V. Novozhilov. It should be noted, however, that both in the Department and in the Institutes of the USSR Academy of Sciences, the idea of spontaneous symmetry breaking, and hence the possibility of existence of the Higgs boson, met rather a negative attitude, although these ideas found some development in the papers of the researchers of JINR (Joint Institute for Nuclear Research, Dubna) and the Center of Gravitation and Fundamental Metrology of Gosstandart. In this connection, we can say that the discovery of the Higgs boson in 2012 and the Nobel Prize award to P. Higgs and F. Englert became a good justification of all these

activities, which have been developing rather intensively in our country owing to Andrei Anatolyevich's works.

Since 1969, the interests of A.A. Grib turned to gravity. In 1969 a paper by A.A. Grib and his student S.G. Mamayev was published, on particle creation in Friedmann's early Universe [2]. This paper presented for the first time a finite result for the number of created particle per unit volume due to the gravitational field of the early Universe. In this and subsequent papers written by A.A. Grib with S.G. Mamayev, V.M. Mostepanenko and later with V.Yu. Dorofeyev, Yu.V. Pavlov and others, a Fock representation was built for quantum fields in the Friedmann curved space-times. The results of these papers were summed up in the monographs [3–5]. For the totality of these results A.A. Grib was awarded a Telesio-Galilei gold medal in Toulouse, France. By analogy with gravitation, A.A. Grib, V.M. Mostepanenko and V.M. Frolov have also studied particle creation from vacuum by a nonstationary electromagnetic field.

Another area of A.A. Grib's interests, related to V.A. Fock's influence, is the axiomatics and interpretation of quantum mechanics. The results obtained in quantum axiomatics have been summed up in two monographs [6, 7]. The papers joint with R.R. Zaplatrin, G.N. Parfyonov and A.Yu. Khrennikov, on the basis of non-distributional quantum logic, described the construction of macroscopic examples of quantum games related to some situations in economy. The point is that in 1975 A.A. Grib left Leningrad University and worked for some years (till 1982) at the Leningrad Institute of Precision Mechanics and Optics, and later, till 2002, he headed the Higher Mathematics Department at the St. Petersburg State University of Economics and Finance. He defended his doctoral (Dr. Sci.) thesis, entitled "Particle creation in the early Universe," in 1980. One of the opponents was Academician Ya.B. Zel'dovich, and the referee report from the leading organization was signed by V.N. Gribov, Corresponding Member of the USSR Academy of Sciences.

In the late 90s of the 20th century, for some years, A.A. Grib worked in Brazil. His book [7] and a number of articles were written together with Brazilian colleagues. For a long time A.A. Grib also collaborated with French theorists. With Jean-Pierre Luminet (Meudon Observatory) he wrote a book about Friedmann and Lemaître [8].

Since 2006 A.A. Grib is Professor of the Department of Theoretical Physics and Astronomy of the Herzen State Pedagogical University of Russia, where such well-known physicists as I.V. Kurchatov, L.E. Gurevich, E.D. Trifonov and others have been working earlier.

A.A. Grib has a remarkable ability to deliver to a listener the meaning of even the most complicated physical ideas. He wrote a number of textbooks on physics and foundations of modern natural sciences [9, 10]. These books make a basis for the lectures he regularly reads to students of the Pedagogical University. The wide interests of A.A. Grib are also reflected in his papers on the interface of science, philosophy and theology. But in the recent time the area of his research interests lies mainly in gravitation. These are the problems of classical and quantum processes in black holes. His works in this area also found a positive response in the scientific community.

Andrei Anatolyevich's friends, colleagues and students cordially congratulate him on his glorious jubilee and wish him new successes in his creative work, good health and prosperity.

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