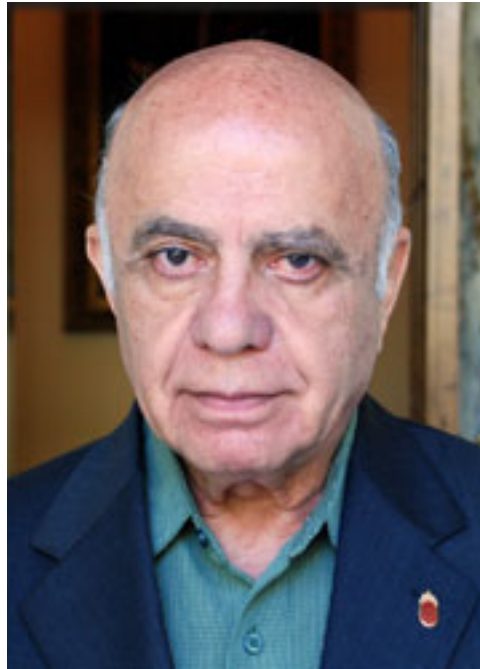




## Prof. Rudolf Muradyan Professor



### **Most important awards, prizes and academies**

Lenin Prize for Physics, 1988; National Academy of Sciences of Armenia, Yerevan (1986); Pontificia Academia Scientiarum (1994).

### **Summary of scientific research**

Rudolf Muradyan was educated at Moscow University and received his doctoral degree from the Joint Institute for Nuclear Research, Dubna. His work has covered a wide range of topics in elementary particle physics, mathematical physics, and cosmology. For discovering the Dimensional Quark Counting Rules he shared the 1988 Lenin Prize for Physics. The main results of Prof. Muradian's research can be summarized as follows: 1) Description of bound states and scattering amplitudes in the framework of Quantum Field Theory. 2) Construction of the Mandelstam double spectral function for 6th order diagram using the analytical properties of partial wave amplitudes in the complex angular momentum plane. 3) Investigation of the three nucleon forces in light nuclei in the framework of Quantum Chromodynamics. 4) Exact solution of the random walk problem on a sphere and in the Lobachevsky space. 5) Direct method of constructing irreducible representations for finite rotation groups - tetrahedral, octahedral, and icosahedral - based on the extraction of roots from unit matrices in a definite direction. 6) He is one of the authors of the Dimensional Quark Counting Rules for exclusive processes. This formula provides

direct information about the composite quark structure of matter and has a wide application in modern particle and nuclear physics. 7) An important contribution was made by Prof. Muradian to the solution of the old and most difficult problem of cosmogony - the problem of the origin of the rotation of planets, stars and galaxies. 8) By means of Mathematica, the computer algebra system, the package Diana was designed and implemented for making automatic and quick dimensional analysis of a broad range of problems in physics, engineering, and economics.

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### Main publications

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