

LIKHTMAN, EVGENY PINKHASOVICH (b. Jan. 12, 1946, Moscow, USSR) together with *Yuri Golfand* constructed the first four-dimensional supersymmetric field theory, supersymmetric quantum electrodynamics with the mass term of the photon/photino fields, plus two chiral matter supermultiplets [1] (a more detailed version was published in [2]). Likhtman was the first to observe that the vacuum energy vanishes in supersymmetric field theories. On page 8 of [4] one can read, in particular: “As is known, in relativistic quantum field theory, in transforming the free energy operator to the normal-ordered form there emerges an infinite term which is interpreted as the vacuum energy. It is also known that the sign of this term is different for the particles subject to the Bose and Fermi statistics. The number of the boson states is always equal to the number of the fermion states. From this it follows that the infinite positive energy of the boson states in any of the representations of the [super-Poincaré] algebra is annihilated by the infinite negative energy of the fermion states.”

Ph.D. in Physics (1971) from Lebedev Physical Institute in Moscow, since 1971 in the All-Russian Institute for Scientific and Technical Information. 1989 I.E. Tamm Prize of the Academy of Sciences of the USSR. For further details see [5].

BIBLIOGRAPHY. [1] Yu.A. Golfand and E.P. Likhtman, *JETP Lett.* **13**, 323 (1971) [Reprinted in *Supersymmetry*, Ed. S. Ferrara, (North-Holland/World Scientific, Amsterdam – Singapore, 1987), Vol. 1, page 7]; [2] Yu.A. Golfand and E.P. Likhtman, in I. E. Tamm Memorial Volume *Problems of Theoretical Physics*, Eds. V.L. Ginzburg *et al.*, (Nauka, Moscow 1972), page 37 (Eng. transl. in [3], p. 45); [3] *The Many Faces of the Superworld*, Ed. M. Shifman (World Scientific, Singapore 2000); [4] A. Likhtman, Report of the Lebedev Physics Institute # 41, 1971, in Russian; [5] E. Likhtman, in *The Many Faces of the Superworld*, Ed. M. Shifman (World Scientific, Singapore 2000), p. 25.

Mikhail Shifman