

## Al'fred Ivanovich Baz' (Obituary)

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Doctor of Physicomathematical Sciences Al'fred Ivanovich Baz' of the Kurchatov Institute of Atomic Energy, an outstanding theoretical physicist, died on 5 August 1978 at the age of 48.

Baz' was one of those scientists who have made their mark in theoretical physics.

His scientific interests were concentrated for the most part on the theory of nuclear reactions and the structure of light nuclei. His chief scientific achievement, the one for which he is internationally recognized, was the theory of near-threshold phenomena (first publication 1957). He showed that the reaction cross section in one channel (for example, an elastic channel) behaves irregularly as a function of energy near the opening threshold of a new inelastic channel. Using an elegant physically lucid formalism, Baz' investigated the possible types of these irregularities (which have come to be known as "cusps") and indicated specific nuclear reactions in which the phenomena that he had predicted might be observed. Actually, these results have come into use in a broader range of phenomena—both in nuclear physics proper and in particle physics. It is sufficient to cite two facts to characterize the scientific significance and classification of the above studies: firstly, the results have been incorporated into modern textbooks on quantum mechanics, nuclear theory, and particle physics and, secondly, their author is generally recognized as a peer of the many outstanding physicists in the theory of near-threshold phenomena.

Among his other well-known results, we mention the theory of exotic excess-neutron light nuclei (with his coauthors, he demonstrated the possibility of existence of such objects), the unique "spin clock" method that Baz' invented to clarify the question of the duration of nonresonant-type reactions, and the theory of "quasi-molecular" near-threshold nuclear phenomena. Baz' contributed significantly to the solution of important applied-scientific problems. He had recently been concerned with problems in the physics of collisions between multiply-charged ions (with an interest in the possibility of formation of shock waves, ultradense nuclear matter, and attendant phenomena in such reactions).

Baz' was the author of a number of excellent review papers (including one monograph). He appeared often among the principal speakers at representative international and All-Union scientific conferences.

Physical intuition was the dominant trait in the scientific creativity of Baz'. He was guided in his choice of subject matter by a direct sense of scientific inter-



AL'FRED IVANOVICH BAZ' (1931-1978)

est, and the results of his work strongly influenced the development of nuclear physics.

Baz' was a theoretician with his own original approach to problems of nuclear physics. Scientific association with Baz' was highly prized by everyone who knew him, since, being a gifted physicist, he unwittingly created his own "projection" of the problem being discussed, unexpectedly turning up new aspects of a phenomenon or range of problems. His inherent charm, his respect for differing opinions, and his sense of humor made conversations with him not only interesting, but also pleasant. Al'fred Ivanovich Baz' was a modest and benevolent human being.

All these personal qualities and first of all, of course, his talents as an investigator attracted young people to him, and he devoted a great deal of effort to their scientific growth.

Baz' also gave no small amount of his time to scientific-organizational projects where they seemed to him to be genuinely necessary. He participated actively in the preparations for and conduct of a number of scientific conferences and workshops in nuclear physics.

The passing of Al'fred Ivanovich Baz' is a severe blow to our science.

Translated by R. W. Bowers