

Alexei Zamolodchikov

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PREFACE

Alexei Zamolodchikov

Alexei Zamolodchikov, a prominent theoretical physicist, passed away on the night of 18 October 2007.

His untimely death is a great loss for science, and for everybody who knew and loved him. The heartbreak and pain of his departure cannot be rendered in words; it is also difficult to describe in a brief note the remarkable contributions of Alexei Zamolodchikov to different areas of theoretical physics and to depict the grace of his personality.

Alexei Zamolodchikov loved Russia, and felt acutely for the plight of our country. His last position was at the Poncelet Laboratory in Moscow. This year he was going to give a course for undergraduate and graduate students at the Independent University of Moscow. The first lecture was to be given on 10 October 2008.

The principal scientific accomplishments of A Zamolodchikov are in the area of quantum field theory. These are works on integrable field theory and the factorized scattering theory; basic results on conformal field theory; a pioneering and fundamental contribution to two-dimensional Liouville gravity and the related non-critical string theory.

A Zamolodchikov's ideas were always original and deep. Here is a brief list of some of them:

- The creation of the theory of factorized S-matrices.
- The discovery of recursive relations for conformal blocks, the key objects of conformal field theory.
- Understanding the nature of operator product expansions in conformal perturbation theory.
- The discovery of the thermodynamic Bethe ansatz in quantum field theories.
- Establishing the exact relation between different scales in integrable field theories.
- Construction of the conformal bootstrap in Liouville field theory, including the theory with boundary and the one on the pseudo-sphere.
- The discovery of higher equations in Liouville field theory.
- The explicit formula for the 4-point function in minimal string theory.

A Zamolodchikov died at the high point of his career, as his talent flourished, in the midst of the realization of profoundly significant scientific projects. Aliosha Zamolodchikov was not just a great scientist, but an extraordinary person. In the sweeping flow of condolences from all over the world, not only do grieving friends and colleagues write about his genius and amazing scientific intuition, but also about his kindness, openness and the absence of haughtiness; about his sense of humor, often quite keen; his simplicity and humility; his ability to support, encourage, and help; his nobleness and magnanimity. These words remind us of those from the New Testament that the fruit of the Spirit is love, joy, peace, meekness... that is how we remember him.

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