XV International Conference on High Energy Physics. Abstract. Kiev, 1970. V.2.

STRAIGHT-LINE PATH APPROXIMATION FOR DESCRIPTION OF HIGH-ENERGY PARTICLE SCATTERING IN QUANTUM FIELD THEORY *)

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In this paper the problem of an asymptotic behaviour of high-energy elastic and inelastic process amplitudes is studied by means of the functional integration methods in quantum field theory.

The closed relativistic invariant expressions for both an elastic and inelastic scattering amplitudes are obtained in scalar nucleon-vector meson interaction model.

The straight-line path approximation (SLPA) permitting effectively calculate available functional integrals is formulated. It is shown that, in the high-energy limit and at fixed momentum transfers, the principal logarithmic terms are cancel Besides, the elastic scattering amplitudes can be represented the eikonal form; the radiation correction contributions to diagrams of the generalized ladder type being factorized and pending only upon momentum transfers. The Poisson distribut over a number of secondary soft mesons is obtained for the lastic scattering cross sections. It is shown that the t-d dence disappears in the differential cross section summed number of all the secondary particles. It is in accordan the hypothesis on the automodel behaviour of the deep in hadron interaction processes at high energies.

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