Some Problems of Optimization Procedure for Beam Lines*, S.N. ANDRIANOV, St. Petersburg State University - In this work we discuss some approaches to the optimization problem for beam lines. The beam dynamics is decribed using the Lie algebraic methods. The matrix formalism for these methods allows to reduce the optimal control theory problems to nonlinear programming problems. This approach permit to use computer algebra codes for study of the parameters space structure and to find optimal values of beam line system parameters. In particular, the known problem of nonlinear aberrations correction can be reduced to a problem of linear algebraic system solution. The nonlinear programming problems are solved using an interval optimization procedure. This approach allows to take into account the physical measurement errors and can be useful for problems with indeterminate conditions.

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