

High-Order Optics with Space Charge: Analytical Approach*, S.N. ANDRIANOV, St. Petersburg State University - This work is devoted to an analytical description of beam dynamics with space charge. The suggested approach is based on the Lie algebraic methods in matrix formalism. The nonlinear operator motion equation for the corresponding Lie transformation is solved using a convergent recurrent procedure. On each elementary interval the required matrices are used in symbolic form. These symbolic matrices are calculated for some modelling beam distributions. These model distributions can be used for approximation of a real beam distribution. The corresponding software is compact and flexible.

* This work is supported in parts the RFBR under grant No. 96-02-17335