

## **CONTINUOUS ANALOGUE OF NEWTON METHOD IN BEAM DYNAMICS PROBLEMS**

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An algorithm of the continuous analogue of Newton method (CANM) is proposed for the solving of the boundary value problems of beam transport. The efficiency of CANM has been practically shown on a number of the problems of beam dynamics leading to the solving of ordinary differential and integral equations. The solving of the problem of determining the optimal (in sense of some criterions of quality) parameters  $P_i$  for charged particles transportation systems taking into account different nonlinear effects, is given. The results of the calculation of the consistent "invisible" straight section (insertion) of the accelerator obtained with the help of CANM are shown.