Magnet Sorting Algorithms*, D. DINEV, INRNE, Sofia - Several algorithms for installing of the dipole or/and quadrupole magnets in synchrotrons and storage rings at their consecutive locations so as to minimize the nonlinear distortions exited by random sextupole or/and octupole errors are given. The magnet ordering procedures make use of an appropriate metrization of the state space which represents by itself the combinatorial space $P_X$ of all permutations $X = (k_1, k_2, \ldots, k_M)$, $k_i \in \{1, 2, \ldots, M\}$, $k_i \neq k_j$ for $i \neq j$, $M$ being the total number of magnets. Two types of algorithms for finding of the optimum magnet sequence are described: the decrease vector algorithm and the controlled random search. The results obtained have been applied to the superconducting heavy ion synchrotron Nuclotron in JINR-Dubna.

* Work supported by NSF of Bulgaria under Contract F - 309.