

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 excited 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 $X = (k_1, k_2, \dots, k_M)$, $k_i \in \{1, 2, \dots, M\}$, $k_i \neq k_j$ 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.

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