X-ray Radiation Intensity Increasing by means of a Discrete Target in a Magnetic Field, P. ALFEROV, B. BOGDANOVITCH, A. NESTEROVITCH, S. STEPANOV, YU. POMAZAN, MEPHI, Moscow - The increasing of X-ray radiation intensity in comparison with a target of optimum thickness can be achieved by following method. The target should consist of a thin foil set. Each foil has thickness less, than an optimum one. The electron beam after passing of each foil should be displaced parallel to facility axis, so that the radiation from previous foil did not pass through the next ones. Besides it, it is desirable, that the beam each time will be cooled in a transverse direction, keeping the orientation on the average. It is possible due to the law of the beam phase volume conservation. All listed requirements can be realised with a movement of a electron beam of a tubular configuration inside a sequence of magnetic solenoids with increasing on length an internal diameter and adiabatically decreasing longitudinal magnetic field. Iris shaped foils are established between solenoids. In paper the calculation results of electron beam with energy 4 Â˝¬ movement in such system are given. It is shown, that angular divergence of X-ray radiation can be reduced, on the average, in several times in comparison with a target of optimum thickness, determined according to the known recommendations. The intensity of X-ray radiation also becomes higher, because the radiation from each "thin" target (foil) is not braked and does not dissipate in a material of the next foils. The method given can be recommended for high current accelerators of an induction type or radio-frequency ones, that operate in an energy storage mode. The formation of a stationary radiation field with the large area permits to exclude beam scanning necessity.