

Correction of the Influence of Persistent Currents in the HERA Proton Ring, H. BRUECK, B. HOLZER, C. LUETTGE, B. PAVLOWSKI, DESY - The persistent currents in the superconducting magnets of the HERA Proton Ring (HERA-p) produce a strong contribution to the sextupole fields at low energies (e.g. 40 to 150 GeV). Thus the decay and the reinduction of persistent currents during the injection of protons and the ramp respectively cause a nonlinear change of chromaticity. Moreover different persistent currents in dipoles and quadrupoles cause nonlinear tune excursions during acceleration. For efficient proton acceleration a correction of tune and chromaticity at low energies is essential. Experiences are available on two methods: a closed loop correction is based on on-line measurements of the sextupole field component in the dipole magnets by means of rotating coils. From these measurements correction currents are derived and applied to the sextupole correction coils. In order to reduce the dependence on delicate sextupole field measurements a second method has been tested. It turned out that persistent currents are sufficiently reproducible to base the correction on predefined correction currents which are stored in a table. These corrections are subsequently applied to the sextupole magnets in fixed time intervals. Last year this technique has already been used successfully for the correction of the tune shift during ramp.