

Lattice and Dynamical Behavior of the Light Source

ANKA, D. EINFELD^{*}, H.O. MOSER^{**},
J. SCHAPER^{*}, ^{*}FHO, EMDEN, ^{**}FZK, Karlsruhe -
ANKA, a 2nd to 3rd generation 2.5 GeV light source is
proposed to be built at the Research Center Karlsruhe,
Germany. This source will be dedicated to the
fabrication of microstructure and X-ray analysis. For
ANKA a structure with a twofold symmetry was
chosen, resulting in two long ($l = 7$ m) and two short ($l = 4$ m)
straight sections. Each unit cell of 90 degree is
composed of two DBA-structures which lead to a
minimal emittance of 45 nmrad. The both DBA-
structures are matched with quadrupole doublets leaving
enough space for the installation of one rf-cavity. The
circumference of the machine is 103.2 m. The working
points are $Q_x = 6.85$ and $Q_y = 2.85$. These working
points with only chromatic sextupoles lead to an
acceptable dynamical aperture for the installation of
different insertion devices (undulators, wigglers and
wavelength shifters). With the introduction of
harmonic sextupoles the dynamical aperture can be
increased by 50 to 70%. The energy acceptance is
larger as 3% and the movements of the working points
with energy and amplitude of the betatron oscillations
are favourable.