

NSLS-II Accelerator Parameters

	Bare Lattice	3DW Lattice	All-ID Lattice
Energy (GeV)	3.0		
Circumference (m)	791.958		
Emittance ε_x (pm-rad)	2086	957	747
Energy Spread σ_δ (%)	0.0514	0.0818	0.0799
Energy Loss per Turn U_0 (keV)	286.4	649.1	831.8
Length of Long Straight (m)	9.3		
Length of Short Straight (m)	6.6		
β_x, β_y at Long Straight Center (m)	20.1, 3.4		
β_x, β_y at Short Straight Center (m)	1.8, 1.1		
Betatron Tunes ν_x, ν_y	33.22, 16.26		
Natural Chromaticity ξ_x, ξ_y	-98.5, -40.2	-98.4, -39.8	-98.4, -39.9
Momentum Compaction α_c	0.000363		
Radiation Damping Time τ_x, τ_y, τ_s (ms)	55, 55, 28	24, 24, 12	19, 19, 9.5
RF frequency (MHz)	499.681		
Number of RF buckets	1320		
Number of bunches	1056		
Time between bunches (ns)	2		
Total beam current (mA)	400		
Average bunch current (mA)	0.47		
Average bunch charge (nC)	1.25		
Synchrotron tune @ $V_{RF} = 3$ MV	0.00871	0.00862	0.00856
RMS Bunch Length @ $V_{RF} = 3$ MV (mm)	2.70	4.34	4.27

NSLS-II Lattice Functions

