

SSC MEDIUM AND LOW β IR TUNING CURVES

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ABSTRACT

The two types of interaction Regions used in the lattice design for the Conceptual Design Report have been investigated and tuning curves connecting the injection and collision optics have been found and are presented. For a complete description of the CDR lattice, see SSC-N-139.

The medium-beta and low-beta interaction region optics have been examined in order to find simple and continuous tuning paths to connect the injection and collision conditions. Paths have been found which smoothly connect the two end points while preserving the overall phase advances of the insertions. Quadrupole values for each type of insertion in T/m are given below for the end points as well as for several intermediate points. The quadrupole values are all given for 20 TeV.

β^*	64m	31m	19m	16m	13m	11m	10m
Q-1	185.7	201.5	208.7	208.4	208.6	208.9	210.0
Q-2	-193.5	-200.1	-201.5	-199.9	-198.9	-198.3	-200.6
Q-3	200.9	200.9	200.9	200.9	200.9	200.9	210.0
Q-4	-160.9	-167.6	-174.3	-187.6	-200.9	-212.0	-212.0
Q-5	110.7	86.1	70.1	60.0	49.2	39.2	19.8
Q-6	-137.4	-109.6	-90.5	-85.7	-79.1	-71.9	-47.5

Medium- β Interaction Region Quadrupole Tuning

β^*	6.0m	5.0m	4.0m	3.0m	2.0m	1.0m	0.5m
Q-1	231.3	219.4	228.0	230.0	223.4	223.1	223.3
Q-2	-228.7	-223.9	-222.5	-230.3	-217.1	-214.6	-213.2
Q-3	227.2	226.1	223.6	221.4	218.2	217.6	215.9
Q-4	-125.2	-130.9	-138.8	-148.8	-161.6	-186.0	-212.2
Q-5	84.0	89.3	91.9	97.8	110.0	133.0	163.8
Q-6	-202.9	-197.2	-193.1	-189.7	-188.1	-189.4	-193.9

Low- β Interaction Region Quadrupole Tuning