

**Lattice Optimizations for a Really Large Hadron Collider, RLHC\***, S. PEGGS, M. HARRISON, M. SYPERS, BNL - A proton collider with parameters beyond those of the LHC may have a synchrotron damping time that is much shorter than the storage time. For example, a 30 TeV machine with an arc dipole field of 13 Tesla has a characteristic damping time of about 2 hours. This has the major advantage of relaxing the strict tolerances usually placed on hadron colliders. Based on a nominal parameter set we investigate the impact of very long FODO cells, clustered correction spool pieces, and the use of iron interaction region quadrupoles. A lattice is presented, with preliminary tracking results.

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