

Damping Ring Designs and Issues*

A. Wolski

Ernest Orlando Lawrence Berkeley National Laboratory, Berkeley, CA, 94720

The luminosity performance of a future linear collider (LC) will depend critically on the performance of the damping rings. The design luminosities of the current LC proposals require rings with very short damping times, large acceptance, low equilibrium emittance and high beam intensity. We discuss the design strategies for lattices achieving the goals of dynamical stability, examine the challenges for alignment and coupling correction, and consider a variety of collective effects that threaten to limit beam quality. We put the design goals in context by referring to the experience of operating facilities, and outline the further research and development that is needed.

** Work supported by the US DOE under contract DE-AC03-76SF00098*

DISCLAIMER

This document was prepared as an account of work sponsored by the United States Government. While this document is believed to contain correct information, neither the United States Government nor any agency thereof, nor The Regents of the University of California, nor any of their employees, makes any warranty, express or implied, or assumes any legal responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by its trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof, or The Regents of the University of California. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof, or The Regents of the University of California.

Ernest Orlando Lawrence Berkeley National Laboratory is an equal opportunity employer.