

## **A Model of ATL Ground Motion for Storage Rings**

N.J. Walker(1) and A. Wolski(2)

(1) DESY, Hamburg, Germany.

(2) LBNL, Berkeley, CA 94720, USA

Low emittance electron storage rings, such as those used in third generation light sources or linear collider damping rings, rely for their performance on highly stable alignment of the lattice components. Even if all vibration and environmental noise sources could be suppressed, diffusive ground motion will lead to orbit drift and emittance growth. Understanding such motion is important for predicting the performance of a planned accelerator and designing a correction system. A description (known as the ATL model) of ground motion over relatively long time scales has been developed and has become the standard for studies of the long straight beamlines in linear colliders. Here, we show how the model may be developed to include beamlines of any geometry. We apply the model to the NLC and TESLA damping rings, to compare their relative stability under different conditions.

*\* 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.