



ACCELERATOR & FUSION RESEARCH DIVISION
Director

December 18, 2006

To Whom It May Concern:

The Damping Rings for the International Linear Collider (ILC) pose a significant technical and cost risk, especially given the decision to build one, rather than two, positron damping rings. This makes demonstration of mitigation of the electron cloud a critical R&D issue. The proposal to use the CESR storage ring as a test vehicle to study performance issues for the Damping Rings is a critical step towards the realization of the ILC. The CESR storage ring can closely approximate the parameters of the ILC damping rings, including a highly instrumented wiggler section, offering a unique opportunity to study key aspects of the Damping Rings. The Accelerator and Fusion Research Division at Lawrence Berkeley National Laboratory has a keen interest in the Damping Rings and enthusiastically supports this proposal. We are willing and eager to provide resources and collaborate in areas where we have particular experience and expertise. Subject to adequate funding, we propose to contribute in the following areas:

Development of ILC damping wiggler and vacuum chamber

M. Zisman, S. Marks, R. Schlueter

A very high priority for the Damping Rings is the validation of techniques to suppress the electron cloud effect in the wiggler chambers. In collaboration with Cornell, LBNL would participate in the ILC wiggler vacuum chamber design and fabrication. In the longer term we hope this will lead to further collaboration with Cornell on the ILC version of the damping wiggler.

Simulation of the electron cloud growth in wigglers

C. Celata, M. Furman, M. Venturini

LBNL is home to the fastest 3D, self-consistent electron cloud simulation code in the world and decades of experience with electron cloud modeling. We will continue our ILC work and provide detailed simulations of the electron cloud in the ILC and CESR-c wigglers. We would provide detailed simulations to help plan and analyze data from the wiggler experiments in CEsR-TA.

Participation in the Experimental studies in CEsR-TA

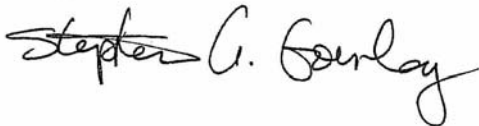
J. Byrd, S. DeSantis, M. Venturini, M. Zisman (in collaboration with SLAC - M. Pivi, L. Wang)

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We are also very interested in the possibility of carrying out measurements of the Fast Ion Instability at CESR. We are doing such measurements on the ALS for the ILC, and believe that this program of study could benefit from the instrumentation capabilities and dedicated experimental schedule planned for CESR-TA. In addition, LBNL scientists would be interested in collaborating in a work package to study electron cloud effects at CESR-TA, with a focus on understanding the electron cloud behavior in the wigglers. We have not yet submitted such a request, but would propose such activities when CESR-TA is approved.

In summary, Berkeley Lab is enthusiastic about the possibility of contributing to this proposal and the work you plan. We believe CesrTA will yield significant payoff in understanding the key issues of the ILC Damping Rings. LBNL has a strong tradition of collaboration. The Cornell proposal offers not only the opportunity to address challenging issues of the ILC Damping Rings but also an opportunity to establish a working relationship with a first-rate facility that can be exploited in the future.

Sincerely,

A handwritten signature in black ink that reads "Stephen A. Gourlay". The signature is written in a cursive style with a large, stylized 'S' and 'G'.

Stephen A. Gourlay
Director, Accelerator and Fusion Research Division
Lawrence Berkeley National Laboratory