



The John Adams Institute for Accelerator Science

Professor Ken Peach, Director

Denys Wilkinson Building
Keble Road
Oxford OX1 3RH
UK

Mobile: [+44][0] 7770 652548

Tel: [+44][0] 1865 273312

Fax: [+44][0] 1865 273418

e-Mail: Ken.Peach@adams-institute.ac.uk

7 December 2006

To Whom It May Concern

Collaboration with Cornell University in development of LiCAS for the ILC Damping Ring

The LiCAS group of the JAI in collaboration with the DESY geodesy group is developing a very precise, fast and cost efficient survey technique based on Frequency Scanning Interferometry (FSI) and laser straightness monitoring for application to the alignment of the International Linear Collider. This system is referred to as a Rapid Tunnel Reference Surveyor (RTRS). Principals in the collaboration from the JAI side will be Dr. Armin Reichold and Dr. David Urner.

In collaboration with Cornell, we propose to extend this technology to curved accelerators such as the damping ring for the ILC which also require exquisite alignment. The CESR Test Accelerator (CESR_TA) is an ideal place to develop a survey and alignment strategy for an ILC damping ring. This would be based on the application of an RTRS and optimally complemented with a variety of fixed survey installations using metrology technology in part derived from LiCAS techniques. The new system will also find application in the alignment of other curved accelerators such a light sources of very low emittance.

Our collaboration with Cornell will, subject to the availability of funding, consist in:

- Extend the LiCAS system to curved elements and provide an RTRS for CESR_TA
- Develop fixed installations, such as hydrostatic leveling systems and FSI networks in regions, such as injection transport lines where RTRS cannot operate or where it is more efficient to use them.
- Develop installations capable of continuous monitoring of magnet positions for investigation of positional stability over various operating cycles, crucial for the ILC damping rings

We understand that Cornell will provide the fixed infrastructure required, operational support for the installation and alignment and survey work as well as analysis of survey data.

JAI has applied for the financial support necessary to carry out the above collaboration activities. The success of that request will be known by April 2007

Yours Faithfully,

Professor Ken Peach

Director, John Adams Institute for Accelerator Science