Summary of Alain Hervé's two-month working visit to SLAC devoted to IR design

This summary gives only the highlights of the work accomplished, without entering into a detailed description.

IR Design progress was made possible due to a two-month visit of Alain Hervé (ETH-Zürich group at CERN) to SLAC during May – July of 2009, and also a one week visit of Klaus Sinram (ILD / DESY) to SLAC in June. Frequent discussions were held with SiD engineers and SLAC resident engineers and physicists.

The goal of this period was to make progress on a practical push-pull design where different concepts (SiD/ILD, SiD/4^{th} or ILD/4^{th}) could co-exist.

The work focused primarily on the configuration of shielding, motion systems for detectors and supports of the final doublet.

The design work started with the assumption that present design choices of the concepts (in particular whether a platform is employed) would be respected.

For the shielding design, it was quickly concluded that present design differences between the SiD and ILD pacman shielding could be eliminated and a common design adopted. Considerations of how to integrate additional shielding around the 4^{th} with pacman shields were begun.

An IR layout was developed that attempts to provide a seamless floor for a detector that does not roll in on a platform while permitting the use of a platform for the second detector.

Subsequent discussions resulted in the conclusion that further progress on design choices for the detector supports and motion systems could only be made after a quantitative vibration and stability analysis of the combined detector/support/motion system was developed, focused in particular on the effect of ground and local vibration sources on the stability of the final doublet. In connection with this analysis a cross-regional experimental program was proposed and various analytic tools discussed.