FY07 ILC Statement of Work – WBS 3.3.3.2 Emittance and flat beam simulations

Work to be Accomplished in FY07

We will design an electron injector consisting of a 1½cell SRF gun producing a magnetized beam, a 30-50 MeV linac and a round-to-flat converter. We will optimize all parameters of this device including gun parameters, bunch charge distribution and perform a front-to-end simulation to calculate the beam quality.

Relevance to the FY07 goals of the ILC Global Design Effort

R&D on the alternate design configurations from the baseline control document. If successful, the injector can replace the electron damping ring and lower the total costs. The required beam emittance has been demonstrated within a factor of three. With careful optimization the emittance may be reduced to the required level.

Key Milestones/Personnel

Layout and front-to-end simulation based on the existing gun design	Jan 07
Layout and front-to-end simulation with optimized gun shape	Mar 07

WBS work package leader Jörg Kewisch, BNL

FY07 Deliverables

Front-to-end simulation of the injector

Cost

Labor FTE's	Labor $K Direct	M&S $K Direct	Indirect costs $K		Total Costs $K
0.5	$124	$0	$48		$172

Labor consists of 0.5 scientific