



Interaction Region & IR integration EDR Planning

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SLAC BDS Kick-Off-Meeting
13 October 2007



Charge: EDR Planning

Present and discuss the work packages that would cover the EDR goals of updating the ILC cost estimate, reducing the risk, reducing the cost, and preparation of the project execution plan.

Discuss the WPs and their allocation process.



IR & IR Integration WP(#4)s

- IR physics design
 - **IR & FD accel. phys. design**
 - **FD Vibration design study tech.**
- IR eng. Design
 - **Detector moving system design**
 - **FD magnet design**
 - **Optimization of CFS requirements**
 - **IR cryogenics design**
 - **FD mover system design**
 - **IR shielding design cost risk**
- IR magnet prototype
 - **IR magnet stability study**
 - **magnet testing**
 - **production**
 - **tooling assembly**
- IR hardware options
 - **Study Rutherford cable for 14mr**
 - **Study permanent magnet for 14mr**



BDS Vacuum System WP#10

relevant to IR Design

- Engineering integrated design of vacuum system
 - **Detailed design of IR vacuum chambers**
 - **Concept. design of Y-s, RF-shield, optic insert.**
 - **Layouts, pump, valves, bellows location**
- Physics design of vacuum system
 - **Physics & impedance design of vacuum system**
 - **Impedance design of vacuum system**
 - **Desorption model for IR, material, coating**



Acc & phys reqts & design integ WPs relevant to IR Design (WP#3)

- Acc & Det phys. design & optimiz.
 - **Background and beam-beam study**
 - **BDS Radiation physics study**
 - **Design feedback and tuning procedures**
 - **IR & BDS wakefield study**
 - **Synchrotron photons in IR study and mitigation**
 - **Different L* optics perf. & tunability**
 - **Study 1TeV upgrade path for FD, PS, magnets**
 - **Study commis. needs (other FD, its support, shielding)**
- Determine specs & interfaces
 - **Define air requirements for CFS**
 - **Define water reqts for CFS**
 - **Define stability reqts for CFS**
 - **Define cranes and coverage reqts for CFS**
 - **Define cavern size reqts for CFS**
 - **Define & optimize beamline height**
 - **Define specs for installation model by CFS**
 - **Define BDS & IR rad safety routes**
 - **Define alignment system requirements**



BDS Instrumentation WP#9 relevant to IR Design-not present

- Fast IP Feedback
 - **BPM design & engineering**
 - **Kicker design & engineering**



EOIs Received Relevant to IR & IR Integration

- Phil Burrows et al/JAI-Oxford:
 - IR & IR integration:
 - IR physics design
 - **Peripheral involvement:**
 - *IR + FD accel physics design*
 - *FD vibration design study*
- Lanfa Wang/SLAC
 - beam-beam in IR; e-cloud in IR
- Boris Levchenko/INP-Moscow
 - Desorption model of IR, material, coating
- E.Syresin et al/DLNP-JINR
 - **Design system for moving detector in push-pull configuration. Design movable shielding wall and packman shielding for IR**
 - Participation of the DLNP well experienced designers in full cycle design works on package using 2D and 3D format design codes.
- Toshinori Abe (10%)/Tokyo
 - **Background and beam-beam study, synchrotron photons in IR**
- Nikolai Mokhov / Fermilab (1.0 FTE)
 - **Energy deposition studies, design and optimization of machine-detector interface and extraction beam line**



EOIs Received Relevant to IR & IR Integration

- Tom Peterson/Fermilab
 - **IR cryogenics design**
 - Probably no others at Fermilab. (Krempetz is on the detector side.) At SLAC/NSF John Weisend. KC Wu at BNL with Brett Parker.
- Alexander Zlobin / Fermilab
 - **IR engineering design**
 - Complementary FD magnet design and analysis for upcoming and disrupted beams including magnet design; field quality, mechanical, radiation, thermal, and quench protection analysis for the baseline design
 - IR shielding design and analysis
 - **IR hardware options**
 - Study Rutherford cable and other options for 14 mrad including IRQ design based on NbTi or Nb₃Sn Rutherford cable and standard winding technique; magnet magnetic, mechanical, radiation, thermal, and quench protection analysis
- Yoshihisa Iwashita / Kyoto U.
 - **Study permanent magnet for 14mr**