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News from DOE/OHEP and NSF/EPP



- **Many thanks to Paul Grannis for stewardship and guidance.**
- **Argonne review and recommendations**
- **Funding history & prospects**
- **Plans for university and laboratory support**
- **Moving forward on the LOIs**



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Detector R&D Review



- **Joint DOE/NSF review of detector R&D for the International Linear Collider at Argonne National Laboratory June 19-20, 2007.**
- **Committee: Tim Bolton (Kansas State), David Cassel (Cornell), Meenakshi Narain (Brown), Regina Rameika (Fermilab), Michael Rijssenbeek (Stony Brook), Bing Zhou (Michigan).**
- **Charged to evaluate:**
 - **Organization and oversight**
 - **Past R&D accomplishments through LCDRD**
 - **Proposed activities during FY2007 and beyond**
 - **Outline goals, priorities, milestones and resources needs for several years.**
- **Links**
 - **Charge: <http://physics.uoregon.edu/~lc/lcdrd/review-07/>**
 - **Presentations: ilcagenda.linearcollider.org/conferenceDisplay.py?confId=1640**
 - **Report: http://physics.uoregon.edu/~lc/lcdrd/review-07/Review_report_Final_Version.doc**
- **Will be an annual event, a required element of oversight and management.**



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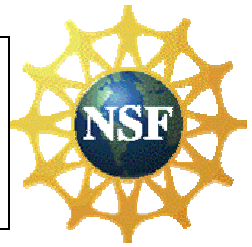
Subsystems Reviewed



- **Vertex**
- **Tracking Detectors**
- **EM Calorimetry**
- **PFA-based Hadron Calorimetry**
- **Dual Readout Hadron Calorimetry**
- **Muon Particle ID**
- **Luminosity, Energy, Polarization**
- **Software Development**
- **Test Beams**

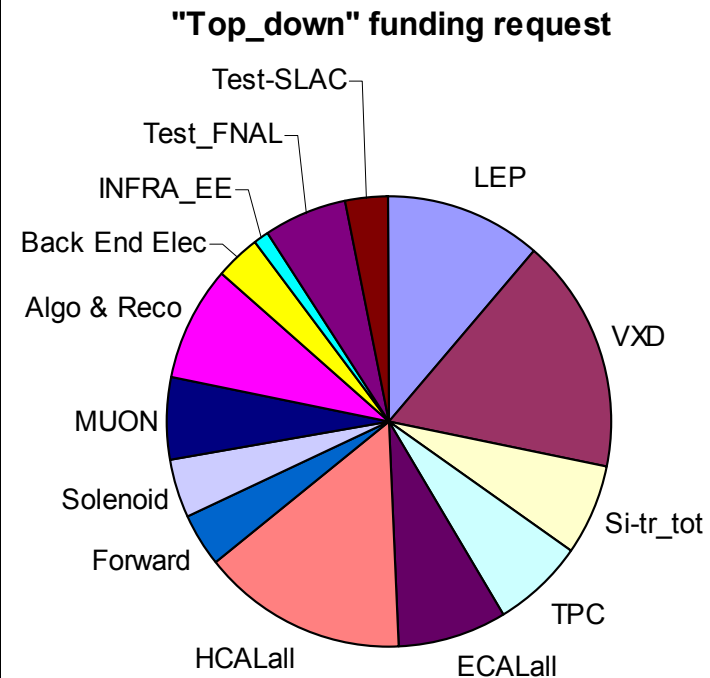


Program Planning, Management, Resource Needs



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- Presented top-down estimate of funding needs, extremely useful
- **FY08-FY012**
 - **SWF: \$79M**
 - **M&S: \$16M**
 - **Reserve: \$9M**
 - **SLAC, FNAL SWF=\$30M**
- **Broadly distributed**
- **Will need to continue development.**





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General Comments



- **Overall committee pleased with progress**
- **But noted funding limited, urged agencies to strengthen U.S. position in development of detector concepts**
- **Concerned over regional character of concepts. Evolution with respect to LOI's will be required**
- **General feeling a more project-like approach will be needed.**



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"Management" Recommendations



- R&D 'project' should be developed.
- Leadership an equal partnership of universities and labs.
- Detailed specifications and goals of the R&D in each subsystem area should be documented.
- Manpower needs for each sub-package should be evaluated.
- Quarterly reports of progress from sub-system leaders and more general reviews on an annual or semi-annual basis should be instituted.
- Standard benchmark processes, both high level (Higgs mass resolution, chargino mixing angles etc.) and low level (tau id efficiency, jet energy resolution etc.) should be agreed upon and used to compare the technologies and detector concepts under consideration
- The barrel and forward trackers should be combined into one integrated system.
- The Dual Readout Calorimeter group strongly encouraged to seek collaboration with existing larger collaborative groups.



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"Agency" Recommendations



- **ALCPG and the agencies should work to stimulate new ways to involve young researchers in ILC R&D.**
- **Support should be increased immediately by 2-3 FTEs for software algorithm developments both on the PFA efforts, and for track reconstruction in jets, particularly for forward track reconstruction.**
- **Large-scale conceptual design studies and realistic extrapolations to large-scale system performance should begin.**
- **Steps should be taken to ensure the availability of End Station A, or an equivalent test beam elsewhere, for luminosity, energy and polarization R&D.**



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Past Linear Collider Detector R&D (LCDRD) Funding*



Year	DOE(\$k)	NSF(\$k)	Total(\$k)
FY05	700	117	817
FY06	1048	300	1348
FY07	1800	375	2185

***Funds for University and Lab M&S**



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DOE Funding Status

- **FY08**
 - **Continuing Resolution through 11/16, perhaps longer**
 - **Detector funding**
 - **Working for continued improvement.**
 - **To zeroth order at FY07 level.**
 - **DOE President's budget @ \$2.3M.**
 - **Subject to outcome of continuing resolution.**
 - **Detector funds distributed to**
 - **2nd year of high priority projects**
 - **Detector university support**
 - **Lab detector M&S**
- **Out-year guidance to be formulated with advice from HEPAP**

NSF Strategy



- **NSF provided \$1.44M to ILC in FY07; \$375K of this was via an umbrella grant to Oregon**
- **We are continuing work on a plan with our DOE colleagues.**
- **One element of this tentative plan is our effort to provide increased support over the next three years for University support of ILC R&D.**
- **We have not finalized the full plan nor any of its elements. The budget CR and level of DOE/OHEP support will be significant factors.**



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Providing Detector R&D Support



- **Guidelines**
 - **Maintain progress**
 - **Respond to review recommendations**
 - **Maintain options for Research Director**
 - **Funding levels and timelines subject to OHEP and NSF review**
- **Funding from both DOE and NSF**
- **Grant period September 2008 through September 2009**
- **Second year of high priority supplements**
 - **As soon as technically possible, at end of 1st year.**
 - **Status reports, budgets sheets, additional material due Jan 15, '08**
- **Renewals**
 - **Opportunity to respond to recommendations (crucial input)**
 - **Two year renewals w/ one year funding (to provide flexibility)**
 - **Subcontracts through Oregon**
 - **Proposed Timelines**
 - **11/1/07: Call for proposals**
 - **12/15/07: Submit to LCSGA for review and prioritization**
 - **2/8/08: Submit to Agencies for joint, peer review. Committee chosen by DOE/NSF**
 - **May 2008: Awards announce.**



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Moving forward on the LOIs and EDRs



- **LOI solicitation**
 - **Submit to ILCSC October 1, 2008**
 - **~100 pages**
- **Considering now how to support the development of the LOIs. At issue:**
 - **Level**
 - **Distribution**
 - **Timing**
- **Funding must be consistent with preconceptual R&D.**



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Seeking Guidance



- **Had a first, informal discussion yesterday.**
 - **Membership representative of community: concepts, universities, laboratories, funding agencies**
 - **Not meant to be exclusive, but an efficient starting point.**
 - **Welcome broader community comments:**
gerald.blazey@science.doe.gov
- **Outcomes & impressions:**
 - **Concept representatives identified the needs of simulation and pre-conceptual structural design**
 - **LCGSA (Jim Brau) will compile and submit to DOE and NSF as advisory material, provide a sense of scope**
 - **We are working to understand funding mechanisms.**
 - **Will consider support for each LOI.**



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University Accelerator R&D



- **George Gollin has proposed a program for University Accelerator R&D**
- **Funding from DOE & NSF**
 - **Level not yet determined**
 - **Possible sources of DOE funding: AARD and ILC/ART**
- **Joint DOE & NSF review of proposals**
- **Discuss details at NSF November 1**



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A Few Comments



- **Progress funding limited, great progress.**
- **Will work to**
 - continue positive slope
 - respond to recommendations
 - support LOIs (must be consistent with a pre-conceptual design)
- **In transition between technology development and detector concept development**
 - Requires a balance of people & resources.
 - Merging of concepts early simplifies and improves management of resources