State of the Laboratory

Jonathan Dorfan, Director

SLUO Annual Meeting

July 06, 2004
Two Main Programs

- **High Energy Physics / Particle Astrophysics**
  
  Experiments, theory, accelerator development for studies of the ultimate structure of matter, the forces between the fundamental entities, the birth and evolution of the universe

- **X-ray Science (SSRL)**
  
  The use of ultra high-intensity x-ray beams (ten million times the intensity of x-ray tubes) for studies in physics, biology, chemistry, medicine, and environmental sciences

- **3000 scientists from about 25 nations use SLAC facilities to do their research**

- **Science Program at SLAC generates 800-900 publications / year – about half HEP/Astro, half SSRL**
Without question, SLAC’s greatest asset is its staff!

- They are outstanding professionally and exhibit a level of dedication and commitment that is exceptional.
- Attrition rates are low (they are typically half those of industry. Professional staff run 3-4% / year) and a very large fraction of our staff make working at SLAC a lifetime career.
- Budget levels in recent years have not allowed for staff growth commensurate with the needs of the programs. Unstintingly, the SLAC staff have ratcheted up yet another notch and performed magnificently.
SLAC has deep roots in one of the world’s leading research universities – Stanford. Without question, this has been a key ingredient in the Laboratory’s success.

In the past few years, the University has taken aggressive steps to make larger investments at SLAC. The University’s motive is simple – enhancing the opportunity to do world class science (Stanford charges no fee for the use of its land or for the operation of SLAC).

Third party financing through the University has become a powerful new element in SLAC’s growth ⇒ Guest House, Kavli Institute and a new Macromolecular Biology SPEAR3 beamline are three such examples.
New SLAC User Lodging
112 Room Facility

$10.7M investment by Stanford.
Operated by University Dining & Residential Enterprises
Stanford Linear Accelerator Center

- PEP-II
- BABAR
- FFTB
- ASSET
- Stanford Linear Accelerator Center

Additional sites: Linear Accelerator, Main Control Center, Central Laboratory, SSRL, SPEAR, PEP-II Detector Hall, PEP-II, Positron Arc, Collider Experimental Hall, Electron Arc, SLC.
Our primary function is constructing and operating large research facilities for our users. This requires:

a) Highly specialized technical staff and extensive infrastructure to design, construct and maintain large accelerators and detectors.

b) Extremely efficient operation of complex accelerators and detectors.

c) Highly specialized, state of the art, computing systems (running 24/7/12) for the analysis and worldwide distribution of data.

The operating efficiency of SLAC’s machines is exceptionally high — yet another tribute to the enormous skill and dedication of the Laboratory staff.
SLAC Machines Run with Very High Efficiency

SPEAR Annual Performance

For FY03 run that ended in March – SSRL delivered a record-tying 96.8%. In comparison, up time in 1975 was 60%
SLAC Machines Run with Very High Efficiency

**E158 Physics Runs**

- **Run 1:** Spring 2002
- **Run 2:** Fall 2002
- **Run 3:** Summer 2003

**E-158 Beam Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Proposal</th>
<th>Achieved</th>
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<tbody>
<tr>
<td>Intensity at 48 GeV</td>
<td>$6 \times 10^{11}$ / pulse</td>
<td>$5.3 \times 10^{11}$</td>
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<tr>
<td>Intensity at 45 GeV</td>
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<td>Polarization</td>
<td>80%</td>
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<td>Repetition Rate</td>
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<td>Intensity jitter / pulse</td>
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<tr>
<td>Energy jitter / pulse</td>
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<tr>
<td>Delivered Charge* (Peta-E)</td>
<td>345K</td>
<td>410K</td>
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*1 Peta-Electron = $10^{15}$ electrons
SLAC Machines Run with Very High Efficiency

Linac + PEP-II Rings: Uptime Performance
(Weekly MTTF, MTTR, and Availability)

Ave. Availability 88%
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<td>E165</td>
<td>9/5</td>
<td>12/23</td>
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<td>7/20</td>
<td>6/10</td>
<td>6/29</td>
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<td>SPPS</td>
<td>E-164</td>
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<td>E-164X</td>
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<td>E164, E164X - Plasma</td>
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<td>0800</td>
<td>11/17</td>
<td>1/5</td>
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<td>E 165 - FLASH, Fluorescence from Air Showers</td>
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<td>SPPS - Sub pico second X-ray Source</td>
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Notes: Available for Test Beams on a limited basis

Commissioning

User Run
Main elements of the SSRL program:

- **SPEAR3 Synchrotron Light Source**
  
  SPEAR facility has just completed a $58M upgrade, equally funded by NIH and DOE. Its capabilities now match the best light sources worldwide. Turn-on has been very smooth. Users are back on-line.

- **X-ray Free Electron Laser (LCLS)**
  
  Use the last 1/3 of the SLAC Linac to produce a new kind of light source, capable of producing $10^{10}$ times more X-rays than current circular accelerators.

- **SPPS – 3x10^7 / pulse, 80 fs Xray beam at FFTB**
On March 8 – first beam was brought into an experimental hutch (BL9-3). BL9-3 was also the first station to be scheduled for users, who measured the first data set on March 15 – within than a year after the start of the SPEAR3 installation.

Benefits of the at-energy injection have become immediately clear – typical fill times are a few minutes as compared to 20-30 minutes with SPEAR2. Systems are in place to implement top-off mode in the future once other goals (stable high current running) have been achieved and radiation safety questions/issues have been worked out. Lifetimes rapidly improving and just now going to 3 fills/day.
LCLS — At Grade Overview

- IN RESEARCH YARD
- 227 M LONG
- 15' x 14'-9" (W x H)
- 63 M HEADHOUSE
- 72" THICK WALLS
- 48" THICK CEILING
- 3 SERVICE AREAS
- ENDS IN HEADWALL
- HEADWALL LABYRINTH
LCLS – a Future with Higher Performance and Capacity
LCLS – a New Dimension in X-ray Science

Schedule
- FY2005  Long-lead purchases for injector, undulator
- FY2006  Construction begins
- FY2007  FEL commissioning begins
- September 2008  Construction complete – operation begins

Technical risks well understood – LCLS is ready for construction start
Utilizes existing infrastructure (SLAC Linac) and talent/resources at SLAC, ANL, LLNL, and UCLA to build in a cost effective and very timely manner
Focus of Current and Future SLAC HEP/Particle Astro Program

- SLAC program is addressing compelling scientific questions facing the field:
  - Where did the antimatter go? (*B*-Factory)
  - Are there new symmetries and forces of nature? (*B*-Factory, NLC)
  - Why are there so many particles? (*B*-Factory)
  - What is Dark Matter? How can we make it in the lab? (LSST, JDEM, GLAST, NLC)
  - Can we solve the mystery of Dark Energy? (LSST, JDEM, NLC)
  - Is there grand unification of particles and forces? (NLC, EXO)
  - What are neutrinos telling us? (EXO)
  - Are there extra dimensions of space? (NLC)

- SLAC HEP/Particle Astro program is extremely broad
SLAC Users Organization

ANNUAL MEETING
Panohsky Auditorium
Tuesday, July 6, 2004

AGENDA

8:00 - 8:30 Breakfast Reception
Panohsky Auditorium

8:30 - 10:00 Welcome from the SLUO Chair
                Gabrielle Sciolli
The Role of the Laboratory
Joseph Doss
The Quantum Universe
Nall Calder
Present and Future of HEP: The NSF Perspective
James Whitmore

10:00 - 10:30 Coffee in Breakway

10:30 - 12:00 Present and Future of HEP: The DOE Perspective
Rohini Srinivasan
HEP and the Other Physical Sciences: The APS Perspective
Helen Quinn
The Future of HEP and the Future of SLAC: Q&A Session
Panels: Duram, Quinn, Srinivasan, Whitmore
The Role of SLUO and How YOU Can Help
Gabrielle Sciolli

12:00 - 1:30 Working Lunch; SLUO Institutional Bay Meeting—Orange Room

1:30 - 3:30 The PEP-II Ascalator
                John Beeman
Physics at KEK
Dave MacFarland
The Future of HEP: Physics
David Hilles
The Muon Experiment
Richen Wills
Theory at SLAC: An Overview
JaeAnn Hewett

3:30 - 4:00 Coffee in Breakway

4:00 - 6:00 SIRL: X-Ray Science with SPEARS, KPPS and LCLS
Jaeheul Koh
Physics at KIPAC
Steven Kahan
GLAST
Bill Anderson
EXO
Thomas Kafkas
Accelerator R&D
Bob Slama

6:00 - 7:00 Beer Social Hour in Guest House Courtyard

SLUO Booth
Ex 4505
Progress in Past Year — Highlights

- **B Factory Program** is flourishing and has shown astonishing performance growth
  - FY04 run alone will double BABAR’s total data as of end of FY03
    - As of FY03 monthly record for integrated luminosity was 7.3 fb\(^{-1}\); its now 16.0 fb\(^{-1}\)
  - BABAR is a physics “fountain” – collaboration has produced 100 journal articles. Continues to lead the way with first results in new CP modes (ex. \(B \rightarrow \rho \rho\), \(B \rightarrow f^0 K_s^0\), \(B \rightarrow \pi^0 K_s^0\), …)

- **GLAST LAT** was successfully baselined despite withdrawal of one major foreign partner. Project is now successfully transitioning from prototypes to production of flight hardware

- **NLC R&D** has successfully met its two TRC R1 demonstration challenges. In addition, eight structures are running at NLCTA with 65 MeV/m gradient and below-spec breakdown rates
PEP-II Monthly Integrated Luminosity

Run 1
Run 2
Run 3
Run 4

Design Performance

CD4
**BABAR**
*Run 4*

- PEP-II Delivered: 100.05/ab
- BABAR Recorded: 97.31/ab
- BABAR off-Peak: 4.77/ab

**Graph Details:**
- **Y-axis:** Integrated Luminosity (fb⁻¹)
- **X-axis:** Time (Sep 1 to Aug 1, 2003-2004)
- **Legend:**
  - Blue: Delivered Luminosity
  - Red: Recorded Luminosity
  - Green: Off Peak
  - Pink: Seeman scenario
GLAST

- GLAST: γ-ray Large Area Space Telescope
  - GLAST measures direction, energy and time of celestial gamma rays from 20MeV – 300 GeV
  - Will Survey entire sky every 3 hours
    - Dark Matter Searches
    - Endpoints of Stellar Evolution: Black Holes, Neutron Stars, Sne remnants
    - Active Galactic Nuclei and Gamma Ray Bursts
    - Discovery!
  - Joint Particle Physics/Particle Astrophysics venture
    - Involves 5 nations, 9 funding agencies

- Fabrication project is challenging
Progress in Past Year — Highlights

- E158 run completed – first results are published, expect results from full statistics this summer
- Kavli Institute is off to a brilliant start – already a force in the field of theoretical and experimental particle-astro and cosmology

.... And lots more as you will see in the talks today
KIPAC: Kavli Institute for Particle Astrophysics and Cosmology

- Institute of Stanford University
  - Institute building on the SLAC site funding by gift from Fred Kavli

- Director and Deputy Director recruited
  - Roger Blandford (CalTech)
  - Steve Kahn (Columbia)

- Establishes Stanford/SLAC/DOE as intellectual force in field

- Institute will bring in funds from NASA and NSF in addition to DOE funds through SLAC
  - Highly leveraged by > $20M investment by Stanford University

- Growing fast!
  - > 20 new people including 3 professional staff, 8 postdocs, 5 students, and lots of visitors
University has committed funds to construct the building, endow the Directorship, and has dedicated 9 new faculty hires to the Institute. This is a major investment at the >$20M scale.
Particle Astrophysics and Cosmology: The Future

- Potential SLAC/KIPAC Projects
  - SNAP Collaboration (JDEM)
    - 2m telescope, 0.7 sq deg field in space
      - Study high z SNe ➔ Dark Energy
      - Weak Gravitational lensing ➔ Dark Matter
      - Strong Lensing ➔ Small scale structure
  - LSST
    - 8.4 m telescope, 8.6 sq deg field on the ground
      - Weak lensing survey of entire sky ➔ Dark matter power density spectrum ➔ Constraints on Dark Energy

- Many other NASA funded KIPAC Projects under discussion (NuStar, Exist, Next, POGO, …)

- Theory effort already very productive, publishing papers
FLASH (E165) at FFTB

- Uses the high energy electron beam to make measurements of the fluorescence yield from extensive air showers
FLASH (E-165) at FFTB

- **Objectives**
  - Spectrally resolved fluorescence yield to better than 10%
    - Effects of atmospheric impurities
    - Dependence on pressure, electron energy
  - **First run 9/03**
  - **Three more short runs in FY04**

![Graph showing fluorescence yield vs. wavelength](image)
E-165 September 2003 Run
Spectrum via Spectrograph

Note that actual line width is important for loss in “gaps”.

Should scan with micrometer next time.
Replacement Facility for FFTB (SABER)

- Two Options: End Station A or SLC South Arc
- Users include:
  - plasma wakefield acceleration
  - laboratory astrophysics
  - detector calibration
  - beam-matter interactions
  - LC IP R&D

(LCLS post 2006)
NLC Program

- **R&D Progress in past year has been spectacular**
  - Both TRC R1 challenges met, many TRC R2 challenges met
    - 65MV/m accelerating gradient
    - Pulse compression in SLED-II design
  - International Technology Recommendation Panel had 2-day site visit at SLAC. Possible technology recommendation by August

- **Plans for near future (Internationally)**
  - Formation of globally federated design group
NLC — RF Component Performance

RF Pulse Compression

Klystron

Modulator

RF Pulse

Beam

Accelerator Structure
Eight-Pack Modulator

76 Cores
Three-Turn Secondary
> 1000 Hours of Operation

Waveforms When Driving Four 50 MW Klystrons at 400 kV, 300 A Each
X-Band Klystrons

Solenoid-Focused Tubes: Have Twelve, 50 MW Tubes for Testing, However Solenoid Power = 25 kW.

Have Developed Periodic Permanent Magnet (PPM) Focused Tubes to Eliminate the Power Consuming Solenoid.

Axial Magnetic Field ~ 2 kG RMS
(~ 5 kG for Solenoid Focusing)

Two PPM tubes have met full NLC Specs of 75MW, 1.6 μsec, 120Hz
Dual-Moded SLED-II Performance
Pulse Compression System

Operated 300 Hours at 500 MW
(475 MW Required)
with Required Reliability
(Pulse Rate = 30 & 60 Hz)
High Gradient Structure Development

In 1999, discovered gradient limitations in original 1.8 m structures – have since:

- Tested 34 structures with over 20,000 hrs of high power operation at NLCTA.
- Improved structure preparation procedures - includes various heat treatments and avoidance of high rf surface currents.
- Found lower input power structures to be more robust against rf breakdown induced damage.
- Developed ‘NLC/GLC Ready’ design with required wakefield suppression features – it is 33% as long (60 cm) and requires 40% of the power of the 1.8 m design.
High Gradient Structure Development - R1

Breakdown Rate at 60 Hz (#/hr)

Unloaded Gradient (MV/m)

Average Rate Limit for 99% Availability
(2% Overhead and 5 sec Recovery)

Design Average Rate Limit
(~100% Availability)
### Snapshot of the NLCTA Structure Testing Online Display

#### NLCTA Eight Structure Summary

<table>
<thead>
<tr>
<th></th>
<th>Total Energy Gain (MeV)</th>
<th>Average Gradient (MV/m)</th>
<th>Average Rate (/hr/struct)</th>
</tr>
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<tbody>
<tr>
<td><strong>Station 1</strong></td>
<td>316</td>
<td>66</td>
<td>0.09</td>
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<tr>
<td><strong>Station 2</strong></td>
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<tr>
<td><strong>B-Pack</strong></td>
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**Run Time (hrs):**

- **Station 1**
  - Run Time: 209.18
  - Run Time (since last reset): 06/05/2004 17:17:07
  - Power on: 100 hours

- **Station 2**
  - Run Time: 187.29
  - Run Time (since last reset): 06/07/2004 00:10:10
  - Power on: 100 hours

- **B-Pack**
  - Run Time: 167.26
  - Run Time (since last reset): 06/05/2004 17:17:22
  - Power on: 200 hours

**Input Power (MV):**

- **Station 1**: 132 MV
- **Station 2**: 140 MV
- **B-Pack**: 316 MV

**Gradient (MV/m):**

- **FXD-A-001**: 65 MV/m
- **FXC-005**: 64 MV/m
- **H60VgS17-3**: 67 MV/m
- **FXC-003**: 66 MV/m
- **FXB-006**: 66 MV/m
- **FXB-007**: 68 MV/m
- **H60VgS17**: 64 MV/m
- **H60VgS17**: 66 MV/m

**Trips:**

- **FXD-A-001**: 28
- **FXC-005**: 27
- **H60VgS17-3**: 13
- **FXC-003**: 9
- **FXB-006**: 0
- **FXB-007**: 32
- **H60VgS17**: 18
- **H60VgS17**: 12

**Rate (/hr):**

- **FXD-A-001**: 0.13
- **FXC-005**: 0.13
- **H60VgS17-3**: 0.07
- **FXC-003**: 0.05
- **FXB-006**: 0.00
- **FXB-007**: 0.19
- **H60VgS17**: 0.11
- **H60VgS17**: 0.07

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07/06/04  SLUO Annual Meeting
**HEP Budget News for FY05**

- **Challenge for FY05 HEP budget** is to accommodate both inflation and cost of power increase associated with the loss of our 42 year-old power contract.

- **House of Representatives Energy and Water Bill** includes following language:
  
  The Committee recommends a total of $753.38 million for HEP, an increase of $16M over the budget request. The control level is at the high energy physics level. The additional funds are provided to meet increased electricity costs at the Stanford Linear Accelerator Center, and to increase operating time and enhance user support at SLAC and the Fermi National Laboratory. The Committee supports the Department's collaboration with the National Aeronautics and Space Administration on the Gamma-ray Large Area Space Telescope (GLAST), the Alpha Magnetic Spectrometer (AMS) and the Joint Dark Energy Mission (JDEM) and encourages NASA to maintain the planned schedule for these missions.
The Future Program – A Carefully Considered and Coordinated Plan

- Driven by the changing scientific imperatives of the new millennium, we have crafted a new vision for SLAC.

- In developing the plan we have invited and incorporated extensive input from the scientific community.

- We have been strongly guided by the highest levels of peer review including National Academy studies (Astronomy Decadal Study, High Density Physics, Connecting Quarks with the Cosmos), Quantum Universe, HEPAP, SAGENAP, etc.

Indeed all the program elements are strongly supported by such peer review.

- Our future-looking program elements feature prominently in the DOE’s 20 year facility outlook.
Future SLAC Program

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<td><strong>High Energy Physics</strong></td>
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<td>Linear Collider</td>
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<td>Launch</td>
<td>Science</td>
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<td>Synchrotron Science</td>
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<td>SPEAR</td>
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<td>Add Beamlines</td>
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SLAC Scenarios Study –
Not a Plan, But a Study of Future Options

- Develop scenarios for the Future of SLAC
  - Scenarios committee had broad participation from staff and users
  - Chaired by Tom Himel and Persis Drell

- Context of the Study:
  - There will be a linear collider built and SLAC will be a major participant
  - PEP-II/BABAR program has a clear future to 2010
  - Growth in particle astrophysics with initiation of KIPAC
  - Future of SSRL to 2015 and beyond determined by SPEAR3 and LCLS
  - No Budget guidance given for scenarios
    - “Lead with the Science”
Conclusions of Scenarios Study

- Pillars of the SLAC Program
  - **High Energy Frontier**
    - Participation in LC *(Invariant)*
    - Possible participation in LHC upgrades
    - High Gradient Accelerator R&D
  - **Science with Synchrotron Light**
    - SPEAR3
    - LCLS
    - Accelerator R&D aimed at upgrades of LCLS
  - **Flavor Physics**
    - $M_{\nu_e}$
    - Future $B$-factory program *(Major variable)*
    - High Luminosity Accelerator R&D
  - **Particle Astrophysics and Cosmology**
    - GLAST Instrument Science Operations Center
    - Effort scaled to the examples of LSST, JDEM participation

- **4 scenarios worked out in detail**
  - [http://www-project.slac.stanford.edu/lc/local/scenario/](http://www-project.slac.stanford.edu/lc/local/scenario/)
The Context

- There will be a linear collider built and SLAC will be a major participant
- PEP-II/BaBar program has a clear future to 2010
- Growth in particle astrophysics with initiation of KIPAC
- Future of SSRL to 2015 and beyond determined by SPEAR3 and LCLS
  - Includes doubling of SSRL staff by 2010
Scenarios: Details

- **Invariance of SLAC’s total LC effort simplified things greatly**
  - Type of effort not an invariant
- **Not necessary to explicitly vary the type or existence of some of the smaller programs**
  - not highly coupled to other programs
- **Assume US 10^36 B-factory cannot co-exist with US LC**
- **Common to All Scenarios:**
  - Major participation in LC
  - SPEAR3, LCLS
  - Particle Astrophysics doubling in 10 years
Scenarios: Details

- **Scenario 1:**
  - LC Anywhere
  - no $B$-factory upgrade past $3 \times 10^{34}$
  - Full Linac capability preserved
  - Advanced accelerator R&D doubling in 10 years

- **Scenario 2**
  - LC Anywhere
  - $2 \times 10^{35}$ $B$-factory at SLAC
  - Advanced accelerator R&D grows by 50% in 10 years

- **Scenario 3**
  - LC on shore
  - $10^{36}$ $B$-factory at KEK
  - Full Linac capability preserved
  - Advanced accelerator R&D doubling in 10 years

- **Scenario 4**
  - LC off shore
  - $10^{36}$ $B$-factory at SLAC
  - Advanced accelerator R&D grows by 50% in 10 years
ES&H Program

- The Laboratory has an extensive ES&H program, operating under the Integrated Safety Management System.

- Safety is a line responsibility – nonetheless there are considerable resources available to the line managers within each of the Laboratory Divisions as well as highly specialized professionals within the ES&H Division.

  - Ultimately Safety is the responsibility of each individual.

- In the last year the rate of accidents has doubled to an unacceptable level. Please do your part to ensure your safety and the safety of those working with you. Placing operational expediency above health and safety is never appropriate.
Peer Review of Lab Performance

- In the past two months, we have had a concentration of major peer review processes:

  May 7-8: Scientific Policy Committee
  Meets every 6 months. Reports directly to Stanford President

  May 18: On-Site Annual Review
  Office of Science Director Ray Orbach, Associate Directors for HEP
  (Robin Staffin), for BES (Pat Dehmer), for BER (Ari Patrinos), and a
  representative for Computing

  DOE Annual Program Review

  June 2-4: Six consultants from HEP Community plus DOE OHEP

  “Lehman Review” of B Factory Operations

  June 15-17: ~ 20 person review of all aspects of operating SLAC

All spoke glowingly of the excellence of the laboratory’s multiple programs
New SLAC Public Lecture Series Energizes its Audience

By Kate Metropolis

"After the electrons and positrons in our linear accelerator have gone just ten or fifteen yards, they are already traveling at 99.99999999 percent of the speed of light. It's hard to make them go any faster, but along the remainder of our two-mile-long accelerator we pump them full of energy."

Images of coffee cups fill the auditorium screen.

"More and more energy."

Drawings of coffee pots fill the screen.

"They are really very, very, very buzzed."

The audience of non-physicists laughs with relief: this public lecture isn't going to hurt, after all. It's going to be comprehensible. It's going to be fun.

There was a full house in Panofsky Auditorium on the evening of February 24, when Neil Calder (COM) launched the SLAC public lecture series with a talk entitled, "What Goes on Inside the World's Longest Building?"

Seventy-five minutes later, the audience had been greeted, on film, by people from around the world drawn to SLAC because of what the world's longest building makes possible. They had learned that SLAC is managed by Stanford for the DOE's Office of Science. They had watched a movie in which a Snickers bar collides with an anti-Snickers bar to create M&Ms and anti-M&Ms, gummy bears and anti-gummy bears, to illustrate that PEP-II produces new particles.

They had heard that BaBar is helping to resolve the mystery of why there is vastly more matter than anti-matter in the Universe, when equal amounts of both were likely present in the beginning. They had seen the crispness of images made at SPEAR of osteoprotic bone as well as an illustration of the GLAST gamma-ray detector.

After the talk, the lobby was packed with people asking questions. They were fielded by an impressive team of strategically placed physicists, mostly graduate students: Christopher Barnes (ARDB), Adam Edwards, Christian Flacco, Steve Sekula, Eileen Sneedan and Michael Wilson (all of BaBar).
The Interaction Point, March 5, 2004

EVENTS

- Volunteer Stanford Community Day
- First Annual CART Data Mining Conference
- Jason Larrabee Visit
- Upcoming Events

ABOUT TIP

- Staff/Contact
- Submission Guidelines

The series was conceived by physicists—users of SLAC’s many resources—who want to inform the public about the value of SLAC in a jargon-free, entertaining way. Emily Ball (COM), the event’s publicist, called the event an excellent success. "We created the opportunity for our community to better understand what we do here."

In twos and threes, 325 neighbors of SLAC slowly filtered out into the night very, very buzzed.

For more information on future lectures, visit: http://www2.slac.stanford.edu/lectures/

The Stanford Linear Accelerator Center is managed by Stanford University for the US Department of Energy

Last update Tuesday March 02, 2004 by Emily Ball

http://www2.slac.stanford.edu/tip/2004/mar05/lecture.htm

5/6/2004
Upcoming Lectures

The 2004 SLAC Public Lecture Series is scheduled for the last Tuesday of every other month (except for the December lecture)

- April 27: *Synchrotron Radiation: The Light Fantastic* (Herman Winick, SSRL)
- June 29: *Our Lopsided Universe: The Matter with Anti-Matter* (Steve Sekula, MIT)
- August 31: *Metals, Molecules, Life and Death* (Graham George, University of Saskatchewan)
- October 28: *Particle Astrophysics* (Roger Blandford, KIPAC)
- December 14: *Magnetism and X-Rays: From the Compass to Modern Technology* (Joachim Stöhr, SSRL)

Please direct content questions to Emily Ball
Site questions to reitmeyer

Last updated 27 April 2004

SLAC
High Level Visitors

We have had a stream of high-level visitors in the past 6 months

Kavli Institute
Ground Breaking - 06/28/04

Senator Ted Stevens and Sean O'Keefe, NASA Administrator, Visit SLAC - 06/12/04

Lord Sainsbury, Britain’s Minister of Science and Innovation and Prof. Ian Halliday - PPARC Chief Executive Visit SLAC - 06/08/04
High-Level Visitors

Dr. Eric Werwa, Legislative Assistant to Congressman Honda Visits SLAC - 04/12/04

Dr. Milton Johnson, Chief Operating Officer, Office of Science, DOE and wife Kathy Visit SLAC - 03/03/04

Jason Larrabee, Associate Staff Member - House Appropriations Committee Visits SLAC - 02/18/04
Conclusions

- Scientific productivity, richness and excellence are the hallmarks of the SLAC program

- SLAC has a clear and exciting vision for the future – given the appropriate investments in HEP and Particle-Astro, SLAC will continue to play a crucial role in providing frontier scientific opportunities for the worldwide user community