LCLS Project Overview and Assessment
20 June 2008

- Welcome
- Project Status
2005 Project Baseline

- TEC $315M, TPC $379M
- CD-4 3/2009 Start of Operations
  - Characterize x-ray flux @ 1.5 Angstroms, in front end enclosure (FEE)
  - Detect X-rays in the Far Experimental Hall

Revised Baseline

- TEC $352M, TPC $420M
- Early Finish 7/2009 Start Near Hall Ops
  - Characterize x-ray flux at 1.5 Angstroms, in front-end enclosure
  - Detect X-rays in the Near Experimental Hall
- CD-4 7/2010 Project Complete
  - Detect X-rays in the Far Experiment Hall
### WBS 1.2 LCLS Injector

**100% Complete**

<table>
<thead>
<tr>
<th>Energy</th>
<th>Sigma_2</th>
<th>Sigma_3</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 MeV</td>
<td>0.83 mm</td>
<td>0.05 %</td>
</tr>
<tr>
<td>135 MeV</td>
<td>0.83 mm</td>
<td>0.10 %</td>
</tr>
<tr>
<td>250 MeV</td>
<td>0.19 mm</td>
<td>1.6 %</td>
</tr>
<tr>
<td>4.30 GeV</td>
<td>0.022 mm</td>
<td>0.71 %</td>
</tr>
<tr>
<td>13.6 GeV</td>
<td>0.022 mm</td>
<td>0.01 %</td>
</tr>
</tbody>
</table>

- **Linac-0**
  - \( L = 6 \text{ m} \)

- **Linac-X**
  - \( L = 0.6 \text{ m} \)
  - \( \varphi_f \approx -160^\circ \)

- **Linac-1**
  - \( L \approx 9 \text{ m} \)
  - \( \varphi_f \approx -25^\circ \)

- **Linac-2**
  - \( L \approx 330 \text{ m} \)
  - \( \varphi_f \approx -41^\circ \)

- **Linac-3**
  - \( L \approx 550 \text{ m} \)
  - \( \varphi_f \approx 0^\circ \)

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### WBS 1.3 LCLS Linac

**86% Complete**

- **Linac-0**
  - \( L = 6 \text{ m} \)

- **Linac-X**
  - \( L = 0.6 \text{ m} \)
  - \( \varphi_f \approx -160^\circ \)

- **Linac-1**
  - \( L \approx 9 \text{ m} \)
  - \( \varphi_f \approx -25^\circ \)

- **Linac-2**
  - \( L \approx 330 \text{ m} \)
  - \( \varphi_f \approx -41^\circ \)

- **Linac-3**
  - \( L \approx 550 \text{ m} \)
  - \( \varphi_f \approx 0^\circ \)

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**Commissioning Complete**

- 3/2008
- 9/2007

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**SLAC linac tunnel**

**research yard**

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June 20, 2008

XPP Welcome

John N. Galayda

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LCLS UNDULATOR SYSTEM

- WBS 1.4 Undulator >89% complete
- ANL: 95% complete
  - 33/33 Undulators +6 spares @ SLAC
  - 33/33 Quadrupoles +4 @ SLAC
  - 19 quad. vac. spools @ SLAC
  - 10 RFBPMs @ SLAC
  - 33/33 Supports with movers @ SLAC
  - 15/33 Beam Finder Wires @ SLAC
  - Aluminum extrusions all @ SLAC
  - Components at varying stages of prep./readiness

- 5/33 rf Beam Position Monitors @ SLAC
- 8/33 Beam Finder Wires
- Wire Position Monitor RFI @ SLAC
- Hydrostatic level system RFI @ SLAC
WBS 1.5 is >76% complete

Front end X-ray optics being assembled

- All mirrors ordered; soft X-ray mirror figure meets spec
- Most diagnostics under assembly at LLNL

June 20, 2008
XPP Welcome

John N. Galayda
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WBS 1.6 XR End Stations >30% complete

- 1.5, 1.6 procurements delayed to start of FY2009 in response to FY2007 BA cut
- Prompt budget authorization for 1Q2009 requested to minimize schedule risk
1.9 Conventional Facilities  >84% complete
Turner Construction Co. >89% complete
Get Ready – Give Us Feedback

- LCLS Linac Commissioned through sector 30
- Required LCLS performance has been observed
- LCLS will be ready for first light summer 2009
- We are looking forward to the start of LCLS experiments
End of Presentation