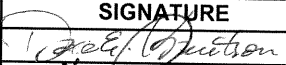


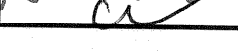



LCLS Directorate - Work Scope Authorization

WBS No:	5.1.1	WBS Title:	Strategic Projects Division Management				
Period of Performance:	10/1/08 - 9/30/09	Total Budget \$K:	\$336	Rev No:	0	Date Last Revised:	1/23/09
WBS Manager:	John Galayda		Account Manager:	John Galayda			
Scope Definition:	<p>This WBS covers the management staffing costs for the LCLS Strategic Projects Division Office. It includes the LCLS Assistant Director and support personnel. For FY09, strategic milestones are: (1) create an integrated plan for LCLS Strategic Projects Division (SPD) organization, staffing and budget by 1 October 2008; (2) Provide oversight and coordinate resources as necessary to execute the LCLS and LUSI baseline plans; (3) Plan and start Future Projects activities by October 2008.</p>						
Profile of Fund Sources:	Linac Operations						
Profile of Performing Orgs:	LCLS Strategic Projects						
APPROVALS:							
	NAME	SIGNATURE	DATE				
LCLS Associate Laboratory Director	Dale Knutson		2-2-09				
LCLS Deputy Associate Laboratory Director	Mark Reichanadter		2/2/09				
WBS Manager	John Galayda		2/2/09				
Account Manager	John Galayda		2/2/09				
LCLS Business Manager	Cindy Lowe		2-2-09				

LCLS Directorate - Work Scope Authorization

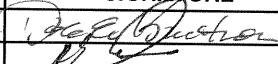
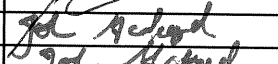
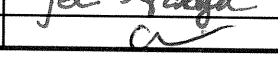
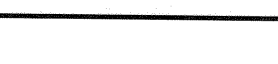

WBS No:	5.1.2	WBS Title:	Strategic Projects Division Administration				
Period of Performance:	10/1/08 - 9/30/09	Total Budget \$K:	\$52	Rev No:	0	Date Last Revised:	1/23/09
WBS Manager:	John Galayda		Account Manager:		John Galayda		

Scope Definition: This WBS covers administrative staffing and activities costs for the LCLS Strategic Projects Division Office. It includes administrative support for the LCLS Assistant Director and support personnel. For FY09, strategic milestones are: (1) Produce and maintain an accurate budget status and forecast for SPD projects by 31 October 2008 (2) Coordinate administrative functions of LCLS and LUSI to support activities such as budget control and reporting on a monthly basis.

Profile of Fund Sources: Linac Operations

Profile of Performing Orgs: #N/A

APPROVALS:

	NAME	SIGNATURE	DATE
LCLS Associate Laboratory Director	Dale Knutson		2-2-09
LCLS Deputy Associate Laboratory Director	Mark Reichenadter		2/2/09
WBS Manager	John Galayda		2/2/09
Account Manager	John Galayda		2/2/09
LCLS Business Manager	Cindy Lowe		2-2-09

LCLS Directorate - Work Scope Authorization

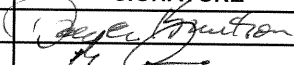




WBS No:	5.3.1	WBS Title:	LCLS Undulator 1				
Period of Performance:	10/1/08 - 9/30/09	Total Budget \$K:	\$139	Rev No:	0	Date Last Revised:	1/23/09
WBS Manager:	John Galayda		Account Manager:		John Galayda		

Scope Definition:

This WBS covers activities and costs associated with the study of the feasibility of modifying the LCLS undulator so as to provide variable gap. At present, the wavelength of x-rays from the LCLS can only be changed by changing the electron beam energy. Variable gap capability for undulator 1 would permit (assuming electron beam quality is adequate) production of 1.5 angstrom radiation from an electron beam with energy 7 GeV or less. Alternatively, x-rays with wavelength of 1 Angstrom or less could be achieved at 13.6 GeV. The decoupling of electron beam energy from the desired output wavelength will be extremely important when the LCLS is expanded to operate multiple undulator sources with independent control of output x-ray wavelength. For FY2009, key milestones are: 1) June 2009: production of a technical report surveying status of R&D for variable-gap FEL undulators at DESY, SPring-8, ANL and LBNL and 2) September 2009: production of a technical report proposing a conceptual design for a prototype variable gap LCLS undulator, making maximum use of existing LCLS undulator system hardware. this report will include a proposal for prototype construction and testing in FY2010.

Profile of Fund Sources: Linac Operations

Profile of Performing Orgs: LCLS Engineering and Physics, ETS Mechanical Design

APPROVALS:			
	NAME	SIGNATURE	DATE
LCLS Associate Laboratory Director	Dale Knutson		2-2-09
LCLS Deputy Associate Laboratory Director	Mark Reichenadter		2/2/09
WBS Manager	John Galayda		2/2/09
Account Manager	John Galayda		2/2/09
LCLS Business Manager	Cindy Lowe		2-2-09

LCLS Directorate - Work Scope Authorization

WBS No:	5.3.3	WBS Title:	LCLS Injector Test Facility				
Period of Performance:	10/1/08 - 9/30/09	Total Budget \$K:	\$121	Rev No:	0	Date Last Revised:	1/23/09
WBS Manager:	John Galayda		Account Manager:	John Galayda			

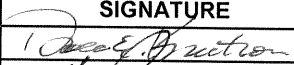

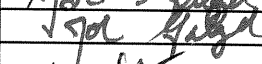
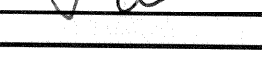

Scope Definition:

This WBS covers activities and costs associated with design and construction planning for an Injector Test Facility (ITF) for the LCLS. The Injector Test Facility will provide the indispensable infrastructure necessary to conduct R&D and testing of advanced electron gun designs. New gun designs could improve the performance of the LCLS by more than an order of magnitude in brightness, as well as in other measures of performance such as wavelength reach. It is expected that the ITF will be used to produce and characterize very bright electron sources, with the goal of enhancing the performance of the LCLS facility in its present configuration. Results from the ITF will be used to determine the capabilities of the LCLS as it is expanded to multiple x-ray sources. For FY2009, key milestones are: 1) April 2009: Production of an LCLS Physics Requirements Document for an Injector Test Facility; 2) June 2009: Production of an Engineering Specifications Document for the Injector Test Facility; 3) June 2009: a written report recommending site selection and 3) September 2009: a detailed cost estimate for the injector test facility based on actual LCLS costs and site-specific considerations.

Profile of Fund Sources: Linac Operations

Profile of Performing Orgs: LCLS Accelerator Systems Division, LCLS Engineering and Physics, ETS Mechanical Design

APPROVALS:

	NAME	SIGNATURE	DATE
LCLS Associate Laboratory Director	Dale Knutson		2-1-09
LCLS Deputy Associate Laboratory Director	Mark Reichenadter		2-2-09
WBS Manager	John Galayda		2/2/09
Account Manager	John Galayda		2/2/09
LCLS Business Manager	Cindy Lowe		2-2-09

LCLS Directorate - Work Scope Authorization

WBS No:	5.3.4	WBS Title:	LCLS Undulator 2				
Period of Performance:	10/1/08 - 9/30/09	Total Budget \$K:	\$660	Rev No:	0	Date Last Revised:	1/23/09
WBS Manager:	John Galayda	Account Manager:	John Galayda				

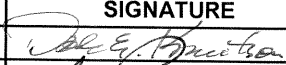


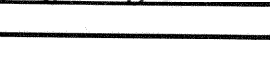

Scope Definition:

This WBS covers activities and costs associated with design and construction planning for LCLS Undulator 2, a concept for a soft x-ray FEL and associated x-ray research facilities in End Station A. The productivity of the LCLS can be dramatically increased by providing capacity for soft x-ray experiments in End Station A. This activity will produce a concept, layout and cost estimate for a 280-2,000 eV radiation source and experiment stations. The design will incorporate concepts for implementation of seeding and other advanced capabilities to keep LCLS at the forefront of ultrafast science experiments with x-rays. For FY2009, key milestones are: 1) June 2009: Production of a technical report surveying the energy dependence of x-ray beam properties for a FEL in End Station A, including temporal coherence control and overall pulse duration ; 2) September 2009: A report describing target performance capabilities and cost estimate for a complete facility.

Profile of Fund Sources: Linac Operations

Profile of Performing Orgs: PPA Accelerator Research, ETS Mechanical Design

APPROVALS:

	NAME	SIGNATURE	DATE
LCLS Associate Laboratory Director	Dale Knutson		2-2-09
LCLS Deputy Associate Laboratory Director	Mark Reichanadter		2-2-09
WBS Manager	John Galayda		2/2/09
Account Manager	John Galayda		2/2/09
LCLS Business Manager	Cindy Lowe		2-2-09

LCLS Directorate - Work Scope Authorization

WBS No:	5.3.5	WBS Title:	LCLS Undulator 3				
Period of Performance:	10/1/08 - 9/30/09	Total Budget \$K:	\$262	Rev No:	0	Date Last Revised:	1/23/09
WBS Manager:	John Galayda		Account Manager:	John Galayda			

Scope Definition:

This WBS covers activities and costs associated with design and construction planning for LCLS Undulator 3, a concept for a soft x-ray pump/hard x-ray probe x-ray source in the existing LCLS facilities. Prospective users have identified two alternatives for the scientific objective of Undulator 3, including 1) a source of x-rays at wavelengths much shorter than LCLS undulator 1 can provide; and 2) "two color" FEL source providing soft and hard x-rays to the same sample with adjustable delay. This task will identify the capabilities and limitations (from the point of view of FEL performance) of undulator 3 performance, including compatibility with operation of the existing Undulator 1 source. A strategy for optimum use of SLAC linac infrastructure will be identified. For FY2009, key milestones are: 1) August 2009: a technical report describing alternative configurations of the SLAC accelerator complex for a 24 keV FEL and for a "2-color" beamline delivering pulses of soft and hard x-rays to a single sample in one of the LCLS hutches in the near- or far-halls 2) October 2009: a rough cost estimate for creating this capability at SLAC.



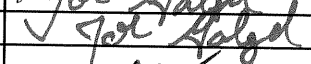
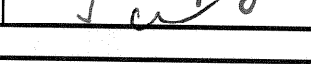

Profile of Fund Sources:

Linac Operations

Profile of Performing Orgs:

PPA Accelerator Research, LCLS Engineering and Physics, ETS Mechanical Design

APPROVALS:

	NAME	SIGNATURE	DATE
LCLS Associate Laboratory Director	Dale Knutson		2-2-09
LCLS Deputy Associate Laboratory Director	Mark Reichenadter		2/2/09
WBS Manager	John Galayda		2/2/09
Account Manager	John Galayda		2/2/09
LCLS Business Manager	Cindy Lowe		2/2-09

LCLS Directorate - Work Scope Authorization



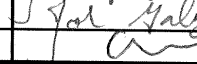


WBS No:	5.3.6	WBS Title:	LCLS Hutch 6 Instrument				
Period of Performance:	10/1/08 - 9/30/09	Total Budget \$K:	\$439	Rev No:	0	Date Last Revised:	1/23/09
WBS Manager:	John Galayda		Account Manager:		John Galayda		

Scope Definition:

This WBS covers activities and costs associated with scoping studies for a scientific instrument in the "Hutch 6" location at the east end of the LCLS Far Experiment Hall. An international collaboration is being assembled to provide funds for this instrument. This WBS will be expanded to comprise the resource-loaded schedule for construction and installation of the Hutch 6 instrument if an instrument is approved for Hutch 6. For FY2009, key milestones are: 1) September 2009: Completion of a scoping study report for a Hutch 6 instrument.

Profile of Fund Sources: Linac Operations

Profile of Performing Orgs: LCLS Engineering and Physics, ETS Mechanical Design

APPROVALS:			
	NAME	SIGNATURE	DATE
LCLS Associate Laboratory Director	Dale Knutson		2-4-09
LCLS Deputy Associate Laboratory Director	Mark Reichenadter		2-2-09
WBS Manager	John Galayda		2/4/09
Account Manager	John Galayda		1/18/09
LCLS Business Manager	Cindy Lowe		2-4-09