

Cornell University Laboratory for Elementary-Particle Physics

CesrTA Down Time and Run Plan

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Overview

		2008			20	009		2010	0
	Apr May	Jun Jul Aug S	ep Oct Nov Dec	Jan Feb	Mar Apr May Jun	Jul Aug Sep	Oct Nov Dec	Jan Feb	Mar
Preparation for Ring Reconfiguration									
Downs with Upgrades/Modifications									
CesrTA Runs									
CHESS Runs									
Low Emittance Program									
BPM System Upgrade									
Positron Beam Size Monitor									
Electron Beam Size Monitor									
Survey and Alignment Upgrade									
Beam Studies									
Electron Cloud Studies									
Instrumented Vacuum Chambers w/EC Mitigation									
Feedback System Upgrade									
Photon Stop for 5 GeV Wiggler Operation									
EC Growth Studies									
Beam Dynamics Studies at Low Emittance									
Legend:	D D In C	esign/Fabricati own Period istallation ommissioning	on						

Operations and Experiments



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Down 1 and Run 1

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Preparation for Ring Reconfiguration										
owns with Upgrades/Modifications										
CesrTA Runs										
CHESS Runs										

- Install instrumented CESR dipole and drift region chambers segmented RFAs.
- Remove first wigglers from CESR Arcs

- Characterize newly installed diagnostics and cloud growth in CESR dipole chamber.
- Work with an intermediate emittance (7 nm) lattice and start beam-based alignment program.
- Instrumentation tests/development



Down 2

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Preparation for Ring Reconfiguration																
Downs with Upgrades/Modifications																
CesrTA Runs																
CHESS Runs																

- Reconfigure CESR for ultra-low emittance
- Install positron xBSM optics line
- Start deployment of new BPM system
- Upgrade survey network and alignment hardware
- Install instrumented vacuum section in L0 (CLEO IP)
- Install instrumented vacuum system in L3 (CUSB IP)
- Remove all wigglers from arcs and re-deploy in L0
- Deploy first instrumented wigglers in L0 (2?)
- Deploy vacuum diagnostics with with wiggler replacement chambers in CESR arcs
- Deploy L3 diagnostic chicane?
- Complete upgrade of transverse feedback system for 4 ns bunch spacings



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"Run 2"

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Preparation for Ring Reconfiguration															
Downs with Upgrades/Modifications															
CesrTA Runs					X										
CHESS Runs				Τ											

- "Run 2" was recently split into 2 pieces, 2a and 2b
 - Accommodates CHESS request
 - Removes stress of a single long dedicated CesrTA run
 - Adds time to think between CesrTA periods
- xBSM optics commissioning
- BPM system commissioning
- Beam-based alignment effort
- Test ultra low emittance lattice for first time
- Characterize electron cloud growth in chambers around the CESR ring (wigglers, dipoles and drifts)



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Preparation for Ring Reconfiguration																	
Downs with Upgrades/Modifications																	
CesrTA Runs																	
CHESS Runs																	

- Install instrumented vacuum chambers and chambers with EC mitigation techniques
 - Additional wiggler chambers
 - Additional dipole chambers
 - First quadrupole chamber diagnostics
- Continue deployment of new BPM system
- Continue upgrade of survey network and alignment hardware



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Preparation for Ring Reconfiguration												
Downs with Upgrades/Modifications												
CesrTA Runs												
CHESS Runs											T	

Run 3

- Some adjustment to the exact schedule for Run 3 is likely
- BPM system commissioning
- Beam-based alignment effort
- Low emittance tuning work
- Characterize electron cloud growth in chambers around the CESR ring (wigglers, dipoles, quadrupoles and drifts).
- Evaluate efficacy of EC mitigation techniques



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Preparation for Ring Reconfiguration															
Downs with Upgrades/Modifications															
CesrTA Runs															
CHESS Runs															

- Install instrumented vacuum chambers and chambers with EC mitigation techniques
 - Additional wiggler chambers
 - Additional dipole chambers
 - Additional quadrupole chambers
- Planned installation of electron xBSM optics line
- Planned installation of photon stop for 5 GeV wiggler tests in L0
- Complete longitudinal feedback upgrade for 4 ns bunch spacings



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Preparation for Ring Reconfiguration															
Downs with Upgrades/Modifications															
CesrTA Runs															
CHESS Runs															

- Major focus on low emittance tuning effort
- Beam dynamics studies spanning a range of emittances
- Tests with wigglers at 5 GeV
- Commissioning of electron xBSM optics line
- Characterize electron cloud growth in chambers around the CESR ring (wigglers, dipoles, quadrupoles and drifts).
- Evaluate efficacy of EC mitigation techniques

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Preparation for Ring Reconfiguration																		
Downs with Upgrades/Modifications																	Л	
CesrTA Runs																		
CHESS Runs																		

• Deploy final vacuum chambers with EC mitigation for testing