

# *Planning for Laser Compton*

## *PosiPol Collaboration*

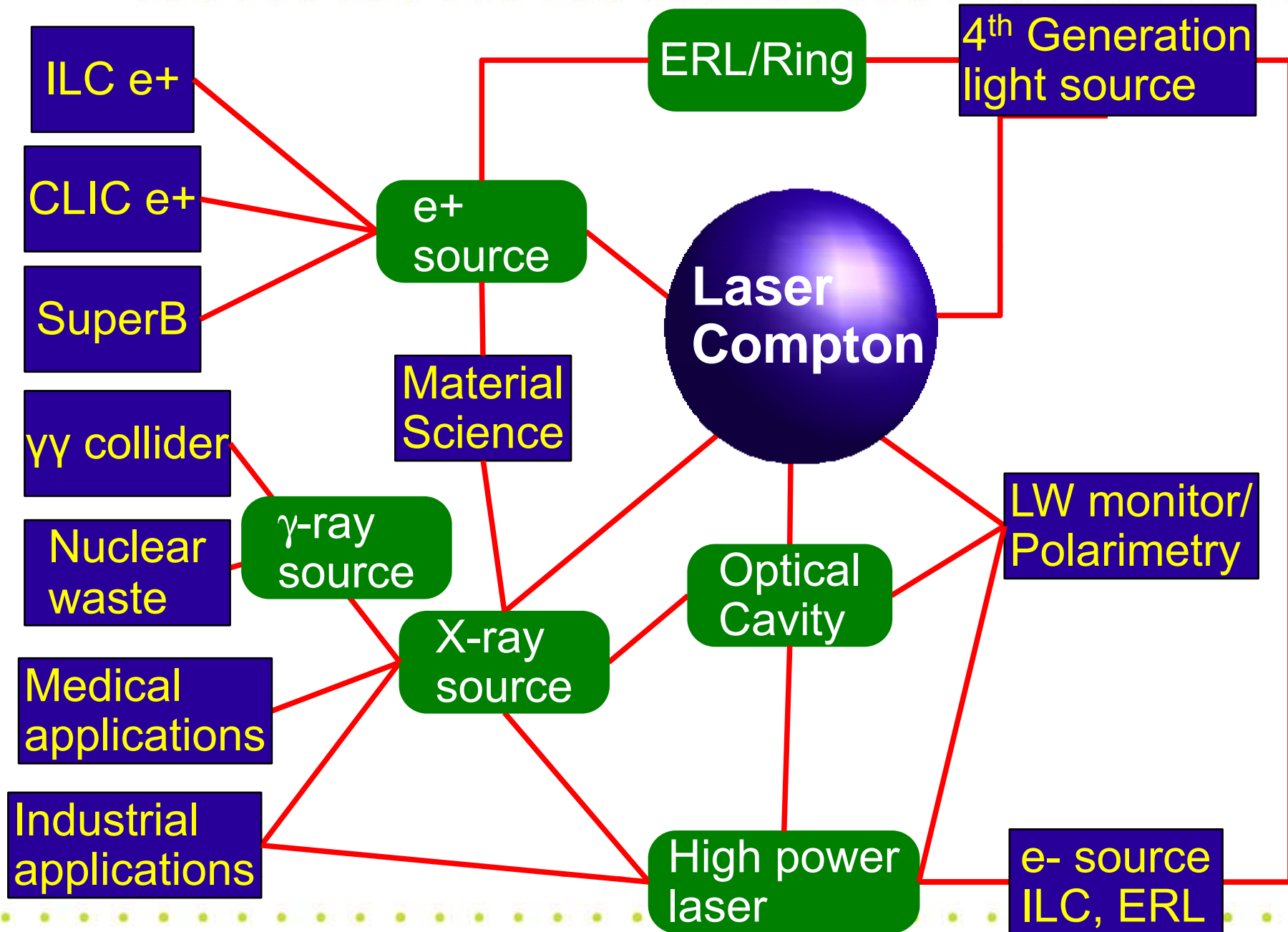
A.Variola on behalf of M.Kuriki  
EDR KOM Meeting  
Daresbury 8-10 October 2007

## In case of Positron

- ▶ There are many ambiguities in ILC  $e^+$  source; Many R&D are required even for the baseline.
  - **New technology/knowledge are obtained not only by strategic efforts for ILC, but also by other activities.**
- ▶ If we read our BCD in this context, three schemes have each important roll;
  - **Baseline scheme, Undulator, is likely to be possible, but need an amount R&D to give our full confidence.**
  - **Alternative scheme, Laser Compton, has more ambiguities, but tight connections to other disciplines and many improvements are expected.**
  - **Conventional has less ambiguities. If other two schemes are very risky, it is our last candidate.**

- ▶ **To promote and improve collaboration between groups working on ILC related R&D: (Purpose of EDR phase by N. Walker in LCWS07)**
  - *To encourage a broader participation from active groups around the world*
  - *To attract new researchers to the field.*
- ▶ Laser-Compton has a large potential as a future technology. Many common efforts can be shared in a context of various applications.
- ▶ Then, Laser Compton technology can be a powerful driving force by attracting many researchers, who belongs not to ILC effort. It is one of the best item of EDR promotion.

# World-Wide-Web of Laser Compton





# Laser Compton EDR Milestones

- ▶ July 08: Complete the conceptual design of the components and system.
- ▶ Dec 08: Complete basic R&D.
- ▶ March 09: Freeze layout, full component and civil specifications
- ▶ June 09: EDR detailed component inventory.
- ▶ End 09: Cost and technical review for the configuration change.
- ▶ End 09: Deliver EDR.



# Work Packages (Laser Compton)

			Work			
			Conceptual Design	R&D	Prototyping	Engineering Desing
Laser Compton	System Design		Many			
	Light Source	Laser Oscillator	KEK,BNL,LAL	KEK,BNL,LAL	KEK, LAL	KEK, LAL
		Laser Amplifier	KEK,BNL,LAL	KEK,BNL,LAL	KEK, LAL	KEK, LAL
		C02 laser	BNL	BNL	BNL	BNL
	Optical Cavity	2-mirrors cavity	KEK	KEK	KEK	KEK
		4-mirrors cavity	LAL	LAL	LAL	LAL
	ElectronSource	Electron Injector	BNL, KEK	BNL, KEK		
		Storage Ring	Kharkov	Kharkov		
		ERL	ERL projects	ERL projects	ERL projects	
	Target	Rotating W-Re				
	Capture Optics	Design	LAL, IPNL, ANL	LAL, IPNL, ANL		
		Lithium lens	BINP, Cornell	BINP, Cornell	BINP, Cornell	BINP, Cornell
	Capture RF	NC L-band Acc	LAL	LAL		
	E+ stacking	e+ stacking	LAL, CERN	LAL, CERN	LAL, CERN	LAL, CERN
	System Integration	Laser + Cavity + e- beam	KEK,BNL,LAL, Hiroshima	KEK,BNL,LAL, Hiroshima	KEK,BNL,LAL,Hiroshima	KEK,BNL,LAL, Hiroshima
	ILC e+ prototyping	KEK, BNL, LAL, IHEP, Hiroshima	KEK, BNL, LAL, IHEP, Hiroshima	KEK, BNL, LAL, IHEP, Hiroshima	KEK, BNL, LAL, IHEP, Hiroshima	



# WP time line (Laser Compton)

Year	07			08				09				10					
Quarter	2 <sup>nd</sup> Q	3 <sup>rd</sup> Q	4 <sup>th</sup> Q	1 <sup>st</sup> Q	2 <sup>nd</sup> Q	3 <sup>rd</sup> Q	4 <sup>th</sup> Q	1 <sup>st</sup> Q	2 <sup>nd</sup> Q	3 <sup>rd</sup> Q	4 <sup>th</sup> Q	1 <sup>st</sup> Q	2 <sup>nd</sup> Q	3 <sup>rd</sup> Q	4 <sup>th</sup> Q		
Laser Compton	System Design	Conceptual Design			Basic R&D												
	Laser Oscillator	Conceptual Design		Basic R&D	Basic R&D	Engineering Design		Engineering Design	Engineering Design								
	Laser Amplifier	Conceptual Design			Basic R&D				Engineering Design				Prototyping				
	CO2 laser cavity	Conceptual Design		Basic R&D	Basic R&D		Engineering Design		Engineering Design	Engineering Design							
	Optical Cavity	Conceptual Design			Basic R&D				Engineering Design				Prototyping				
	2-mirrors cavity	Basic R&D			Engineering Design				Engineering Design								
	4-mirrors cavity	Conceptual Design			Basic R&D				Engineering Design				Prototyping				
	System Integration	Basic R&D			Basic R&D				Engineering Design				Prototyping				
	Electron Injector	Conceptual Design			Basic R&D				Engineering Design								
	Storage Ring	Conceptual Design			Basic R&D				Engineering Design								
	ERL	Conceptual Design			Basic R&D				Engineering Design				Prototyping				
	Solid target	Conceptual Design															
	NC L-band Acc	Conceptual Design			Basic R&D				Engineering Design								
	Stacking	Conceptual Design					Basic R&D			Engineering Design							
	SI Laser + Optical Cavity + e- beam	Basic R&D			Basic R&D				Engineering Design				Prototyping				

Legend





# Laser Compton Time Line Summary

Year	07			08				09				10			
Quarter	2 <sup>nd</sup> Q	3 <sup>rd</sup> Q	4th Q	1 <sup>st</sup> Q	2 <sup>nd</sup> Q	3 <sup>rd</sup> Q	4th Q	1 <sup>st</sup> Q	2 <sup>nd</sup> Q	3 <sup>rd</sup> Q	4th Q	1 <sup>st</sup> Q	2 <sup>nd</sup> Q	3 <sup>rd</sup> Q	4th Q
Conceptual Design	■														
R&D	■														
ED and EDR writing								■							



- ▶ Laser Compton is very important as driving forces by attracting wide variety of people; This facilitation is one of the purpose of EDR phase.
- ▶ R&D efforts can and should be shared with various efforts to save our limited resources, but be careful about deliver time and missing pieces.
- ▶ A set of WPs and its time-line are presented.