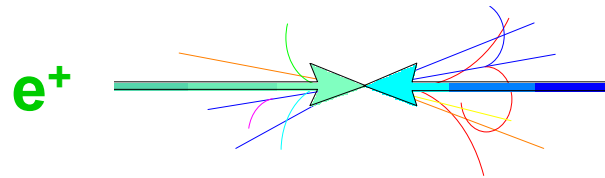


Scope of the POSIPOL Workshop

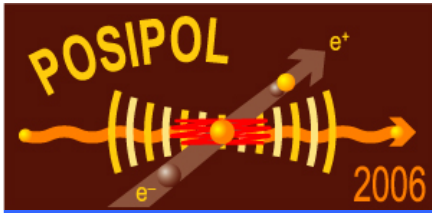
L. Rinolfi

CERN



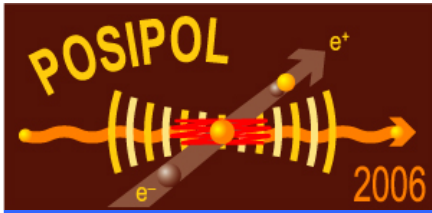
POSITONS POLARISÉS

(in French)



Aims of the POSIPOL workshop

- discuss options and open issues of polarized positron source, based on laser Compton back scattering, for CLIC and ILC.
- assess and coordinate the outstanding R & D efforts towards a complete Compton source design.
- compare the issues with the undulator source.
- analyze the experimental programs carried out in the different laboratories.
- elaborate the baseline recommendation for CLIC.



State of the art for e^- polarization

Polarized e^- beam at SLAC:

SLC ~ 75%

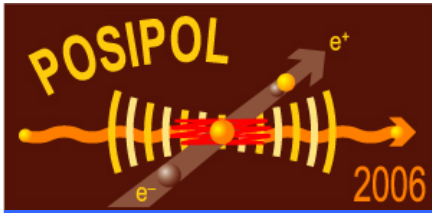
Experiment E-158 ~ 90%

Polarized e^- beam in Japan:

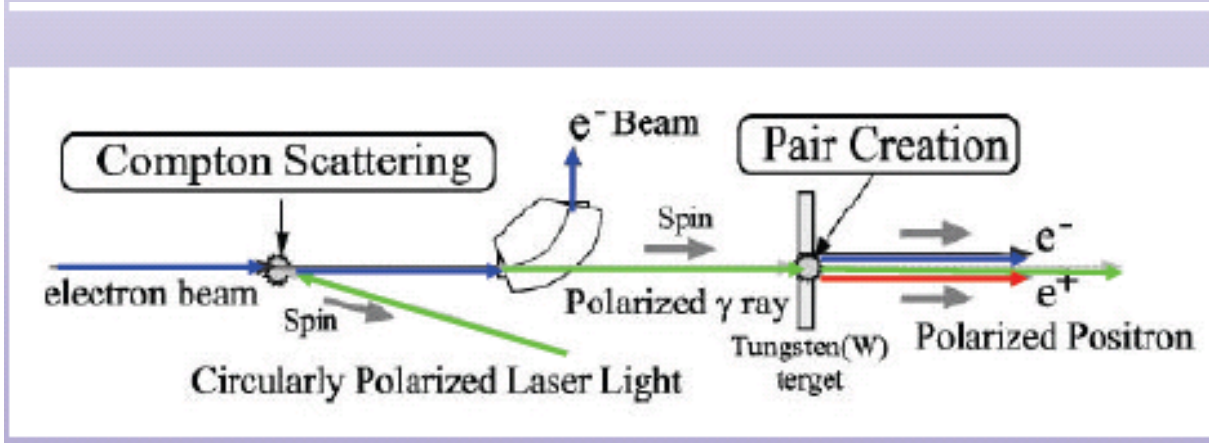
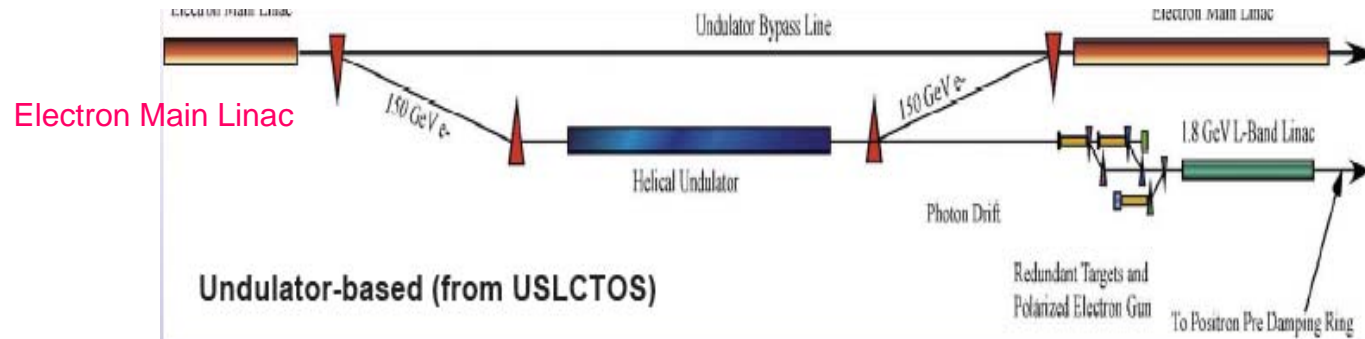
at Nagoya: ~ 90%

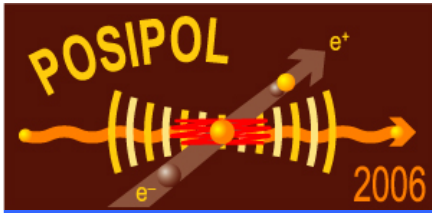
Physicists expect $P(e^-) \sim 90\%$ at ILC and CLIC

Physicists expect $P(e^+) \geq 60\%$ at ILC and CLIC



Three schemes for 2 Linear Colliders: CLIC and ILC



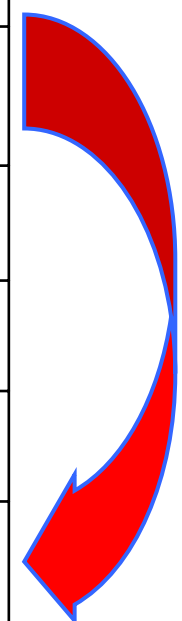


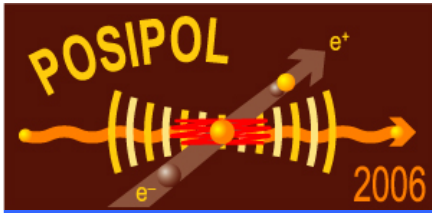
Positron charges for linear colliders

	Rep rate Hz	# of bunches per pulse	# of e ⁺ per bunch	# of e ⁺ per pulse
SLC	120	1	5.10 ¹⁰	5.10 ¹⁰
CLIC (3 TeV)	150	220	2.56.10 ⁹	56.3.10 ¹⁰
NLC	120	192	0.75.10 ¹⁰	1.4.10 ¹²
TESLA (TDR)	5	2820	2.10 ¹⁰	5.6.10 ¹³
ILC (Nominal)	5	2820	2.10 ¹⁰	5.6.10 ¹³
ILC (Upgrade)	5	5600	1.10 ¹⁰	5.6.10 ¹³

(X 10)

(X 1000)



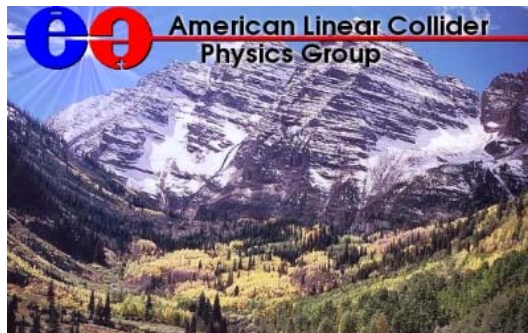


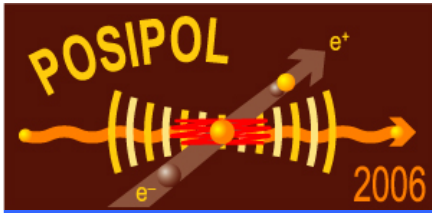
Workshops on e^+ sources

ILC workshop on positron sources held at CCLRC Daresbury in April 2005

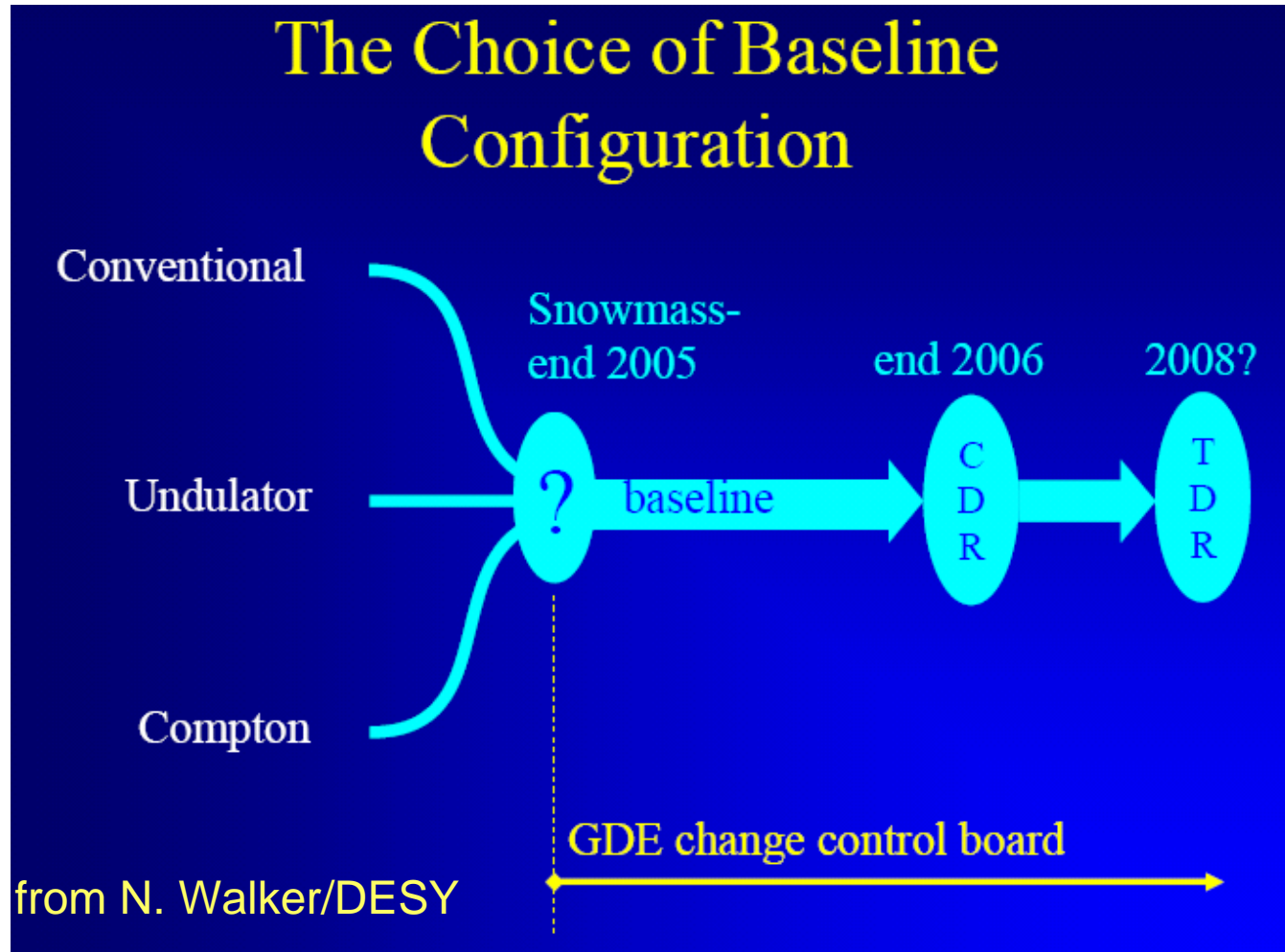


ILC positron sources discussed at Snowmass in August 2005

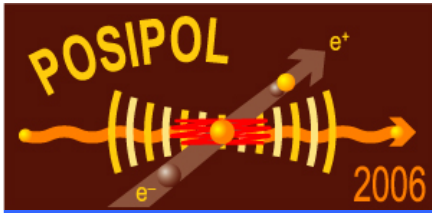




Routes for ILC at Daresbury 2005

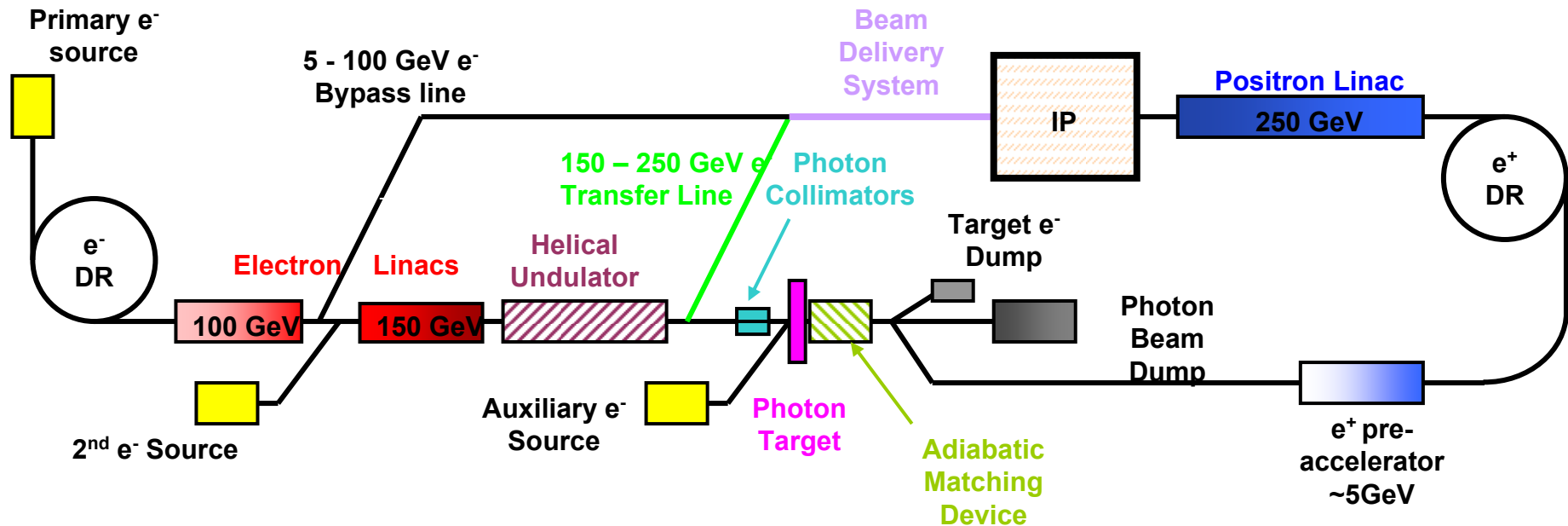


Wednesday 26th April 2006

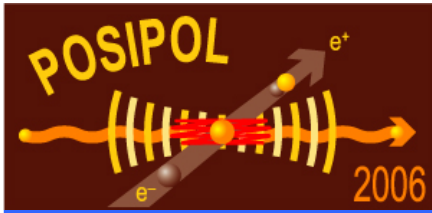


Recommended Baseline Layout at Snowmass 2005

From J. Clarke, M. Kuriki, , P. Piot and J. Sheppard

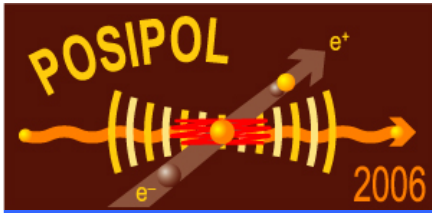


Undulator at end of electron main linac and with
keep-alive source

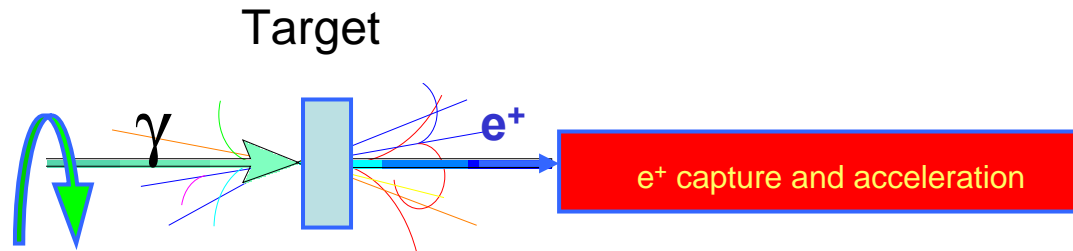


Snowmass WG3a - August 2005

- **Baseline Recommendation**
 - Helical Undulator Based Positron Source with Keep Alive System
- **Alternative Study Recommendation**
 - Laser Compton Based Positron Source
- **Additional Recommendation**
 - Conventional Source is a backup to the undulator based source but no further R & D should be carried out on the conventional source at this time
- R&D proposals for Baseline & Alternative are under development and will be part of documentation



Challenges for all schemes



Specific

Compton

Undulator

Common

Target issues

Capture systems (Magnets and RF)

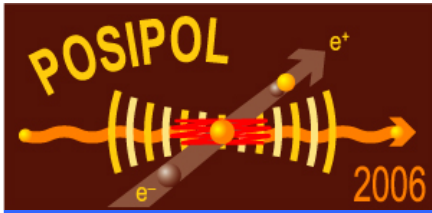
Remote handling

Reliability

Pre-Damping Ring acceptance

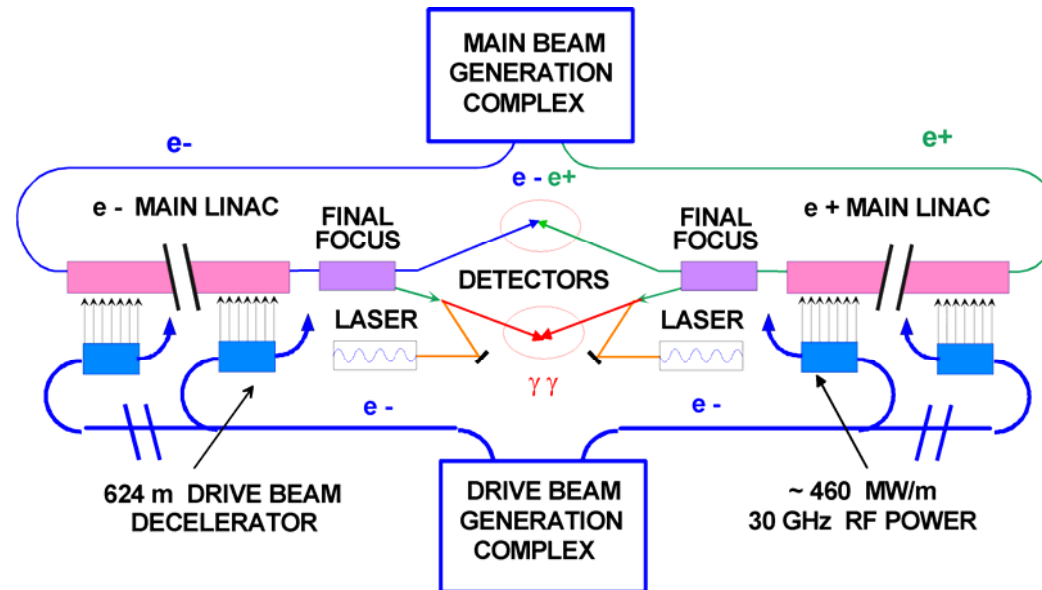
Cost estimate

...



The Compact Linear Collider

CLIC aim: develop technology for e^-/e^+ collider with
 $E_{\text{CMS}} = 1 - 5 \text{ TeV}$



Present mandate: Demonstrate all key feasibility issues by 2010
including production of polarized particles.