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[redacted]

2nd ECFA/[illegible] Study on [illegible] and [illegible] for a Linear [illegible] Collider

LAL - Orsay - France, April 5-7, [illegible]

Date : April 6, [illegible] - 11:15

Parallel groups to plan tasks :

Electroweak gauge theories

2nd ECFA/DESY Study on e^+e^- LCs Orsay, April '98

Electroweak Gauge Theories

↳ SM Physics

↳ Gauge Boson Properties (SM & beyond)

http://crunch.ikp.physik.tu-darmstadt.de/alc

[ohl@hep.tu-darmstadt.de, ohl@ifl.de]

↳ Announcements
Contacts
etc.

Theory [illegible] TU Darmstadt

Electroweak Gauge Theories

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Thorsten Ohl <ohl@hep.tu-darmstadt.de>

Martin Pohl <M.Pohl@cern.ch>

Richard Hawkings [illegible]

Johannes Steuerer [illegible]@cern.ch

H. Jürgen Schreiber [illegible]

Ties Behnke [illegible]@cern.ch

Jean-Claude Brient [illegible]

Henri Videau [illegible]@intpt.fr

Reisebeck Thorsten [illegible]@intpt.fr

Arnd Leike [illegible]

Torel Riemann [illegible]

Nello Paver [illegible]infn.it

Hubert Spiesberger [illegible]

Hywel Phillips [illegible]

Jukka Maalampi [illegible]

Christoph Burgard [illegible]

André Turcot [illegible]

Physics programme

1) TGV high precision Q
   500 fb^{-1} yr^{-1}

2) QGV

3) EWSB
   → strongly interacting
   weak sector [illegible]

4) Background for Higgs searches
   & Higgs precision measurements

5) Background for top precision meas.

6) EW radiative corrections
   on the gauge boson sector
   500 fb^{-1} yr^{-1}

Calculational program

1) $e^+e^- \to 2f$ @ high energies

2) $e^+e^- \to 4f + \gamma$
@ [illegible] precision

3) $e^+e^- \to 4f + g$
@ good precision

4) $\gamma\gamma \to 4f$ complete [illegible]

5) $\gamma e^- \to 3f + \gamma$
$+ g$

6) $e^+e^- \to 6f$ ← n. $BV \to 6f$
or n. $2V + 2f \to 6f$

7) Polarization initial and final states

Interaction w/ machine group

1) Beam spectra for e^+e^-, e^-e^- at higher luminosity (new parameters)
   ⇒ trivial: Oki/Schulte

2) Beam spectra for γe^-, $\gamma\gamma$
   ⇒ harder (needs input from PLC guns)

Interaction w/ Detector group

1) "Canonical Cuts"
(Same procedure as last year?)

2) "Reasonable Cuts"
(necessary?)

3) Physics Monte Carlo
– Detector Monte Carlo
Interface
(smearing? [illegible]?)

Specific Projects

1) Beam spectra for $5 \cdot 10^{34}\,cm^{-2}s^{-1}$
→ Generic group [Th.O., Daniel Schulz]

2) Radiative Corrections
for $e^+e^- \to Z\gamma$ → Leuni?
$e^+e^- \to Z\gamma\gamma$ vs. $\int dx\,dx\,D(x)\,\Phi_{\gamma\gamma}(x,x)$

3) Energy calibration using
asymmetric beams
20 GeV × 500 GeV → m_Z
500 GeV × 500 GeV → asymmetry

?

4) ZPITTER @ TESLA [Dean Zeidler, Tom Hammond et al]

5)

Reference reactions:

1) $e^+e^- \to l^+ l^- g g$ bend & [illegible]

$\to g g g g$ (?)

$\to e^+ e^- g g$

2) $e^+e^- \to V V f \bar{f}$ [illegible]

$\boxed{\text{Generator ?}}$

3) $\gamma\gamma \to VV \to f\bar{f}$

4) Radiative Return

$e^+e^- \to Z\gamma + n\gamma$

5) $e^+e^- \to c\bar{c}$

$b\bar{b}$