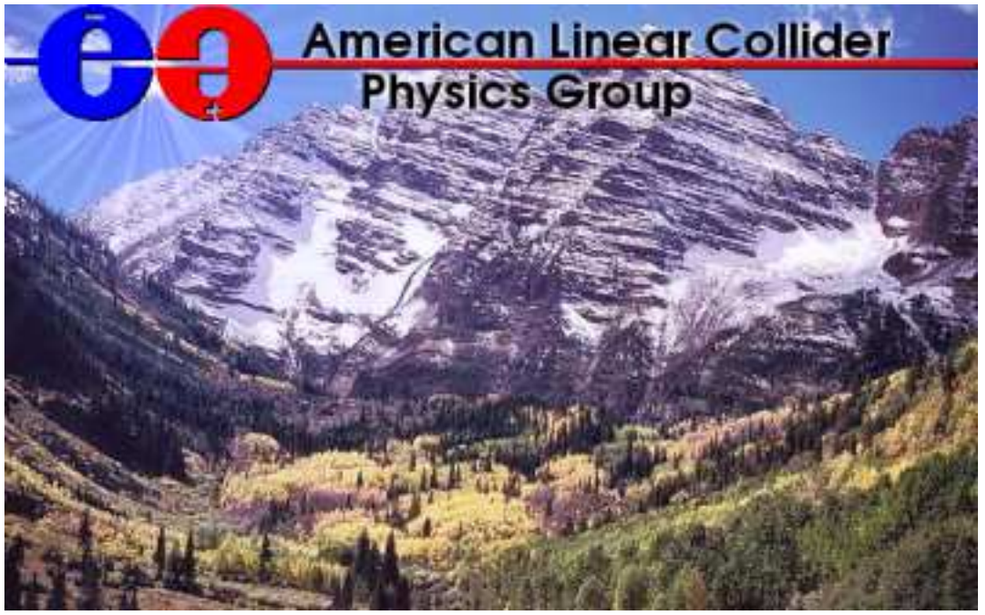
Energy and Luminosity Spectrum Planning Session



2005 International Linear Collider Physics and Detector Workshop
and Second ILC Accelerator Workshop
Snowmass, Colorado, August 14-27, 2005

Friday August 19th, 11 AM

Purpose and Outline

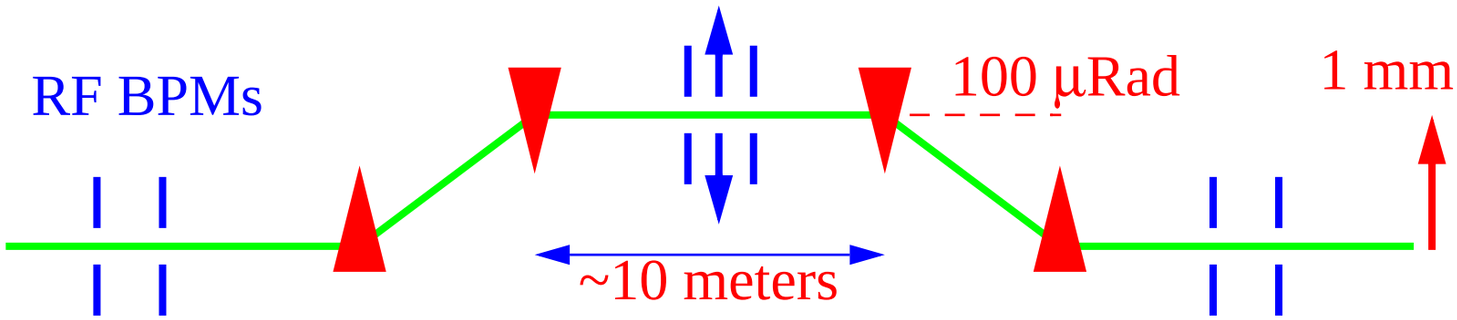
Purpose

- Assign homework for rest of workshop
- Schedule talks for Tuesday WG4 session (2 hours)

Topics

- Upstream RF-BPM Spectrometer
- Downstream SR Spectrometer
- ESA future program
- Additional Machine Diagnostics
- Physics Reference Reactions
- Putting it all Together

Upstream Spectrometer



Issues

- BPM specifications and capabilities - Stewart B.
- Magnet feasibility and specifications - ??
- Luminosity impact

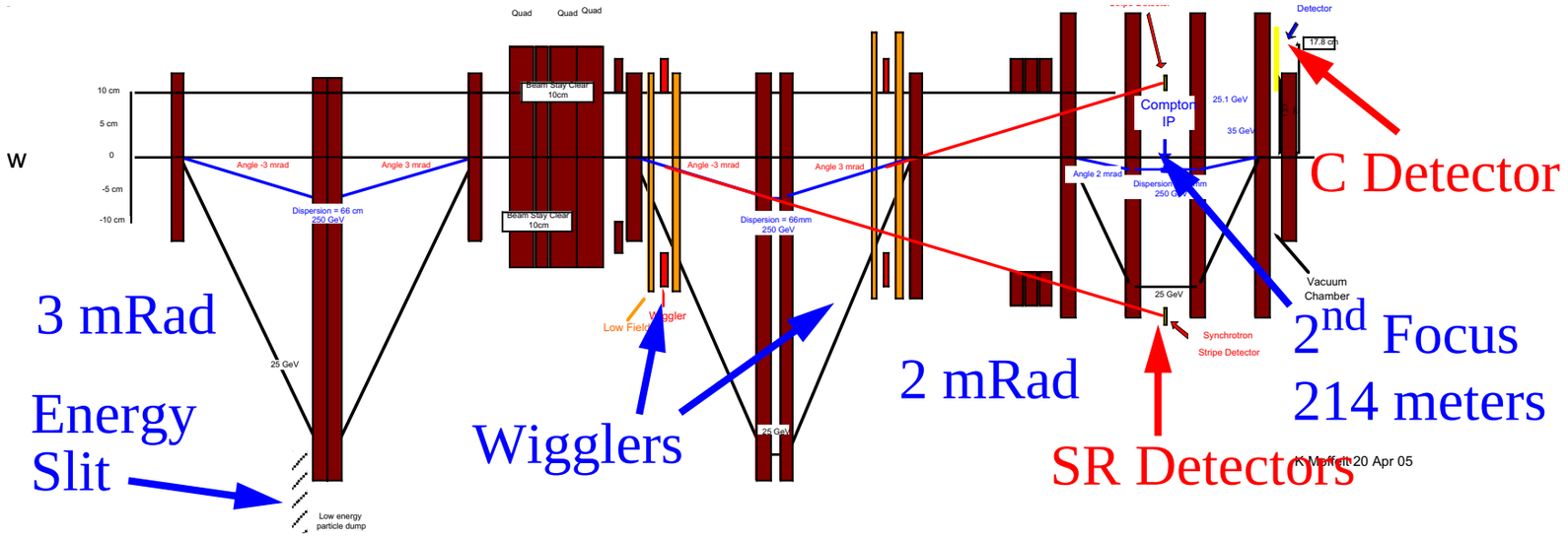
  Steering should be corrected locally - 4 corrector scheme
  Path length difference: 1mm on 10m = 0.1 μm (times 2)
  Crab cavity 0.02 deg. on 3 GHz = 5 μm?

- Explore operational/calibration modes

  BPM/mechanical stability limit, calibration time
  ramp philosophy, bi-polar vs. zero

Propose 20+10 min talk by Stewart B. or ?? on Tuesday?

Downstream Spectrometry



Issues

- Investigate 2 and 20 mRad layout details - Eric T.

  Apertures, shielding, magnet requirements

- Wiggler/detector specifications - Eric T.

- Extraction line simulation

  Technical issues, new BDSIM version - John C. Ilya A.

Propose 15+5 min talk by Eric T. on Tuesday?

Long-term goal is a working spectrometer prototype in ESA

Immediate goal is demonstration of Spect BPMs and SR detectors

Large difference between two...

Propose 15+5 minute talk from Mike W.?

Machine Diagnostics

- Energy spread at end of linac
- Energy vs. z bunch profile
- Spotsize (laserwire) performance

Needed as inputs/cross-checks for lumi spectrum extraction

Propose 10+5 minute talk from Graham B.?

Physics Reference Channels

Reference Reactions

- Bhabha acolinearity
- Radiative Returns
- ZZ invariant mass
- Direct momentum/energy measurements
- t-channel WW (polarimetry)

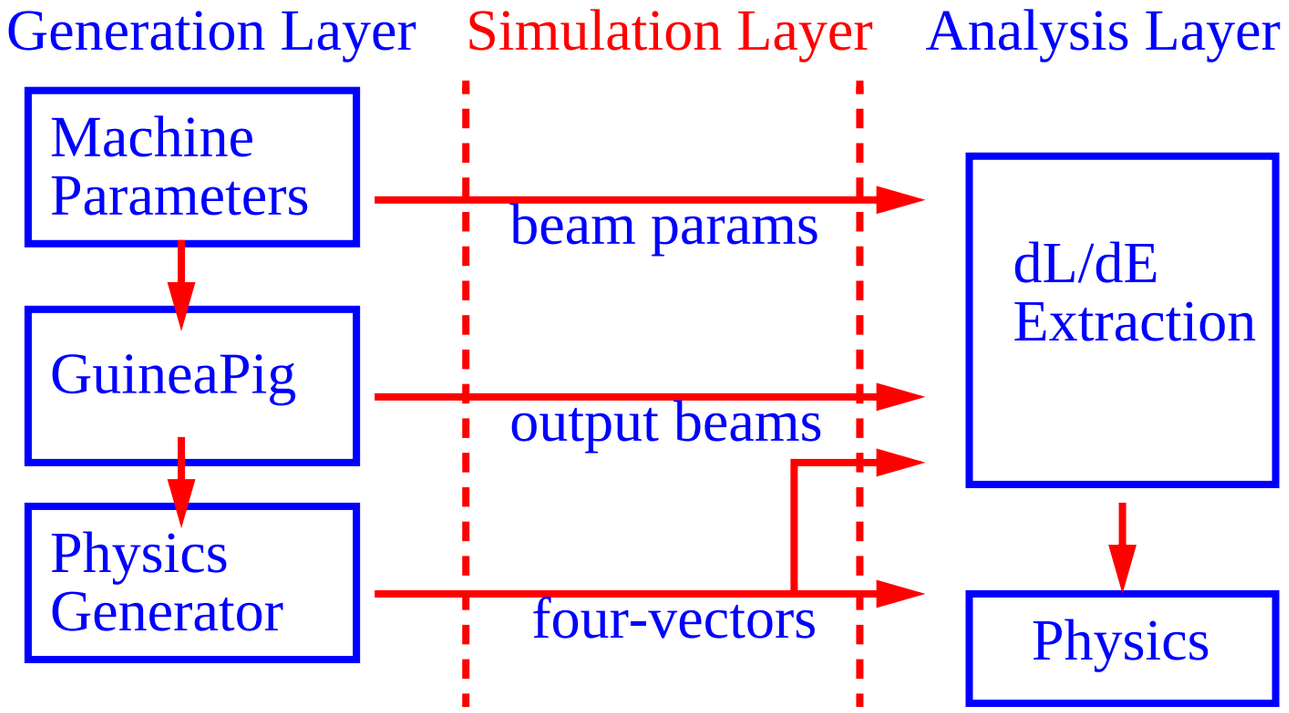
Possible to-do items

- Tabulate expected performance (mostly done?)
- Outline detector requirements (partly done?)
- Prepare short presentation for concepts?

Eric T. or Klaus M. or Tim B.?

Is this really of interest to WG4?
Could give short talk on detector requirements...

Lumi Spectrum Analysis



Current Issues

- Integration with Glen W. production
- Interface for physics generators
- Machine/beam parameters to store “machine MC truth”
- Agree on output format

Need small group discussion
Outline of proposal on Tuesday?

Proposed Tuesday Agenda

20+10 Upstream Spectrometer

Boogert or ???

15+5 Downstream Spectrometer

E. Torrence

15+5 ESA spectrometer program

M. Woods

10+5 Machine Instrumentation

G. Blair?

15+5 Reference Reactions?

???

15+5 Full Lumi Spectrum extraction planning

S. Boogert

This is all open for debate
Perhaps want more discussion on specific topics?