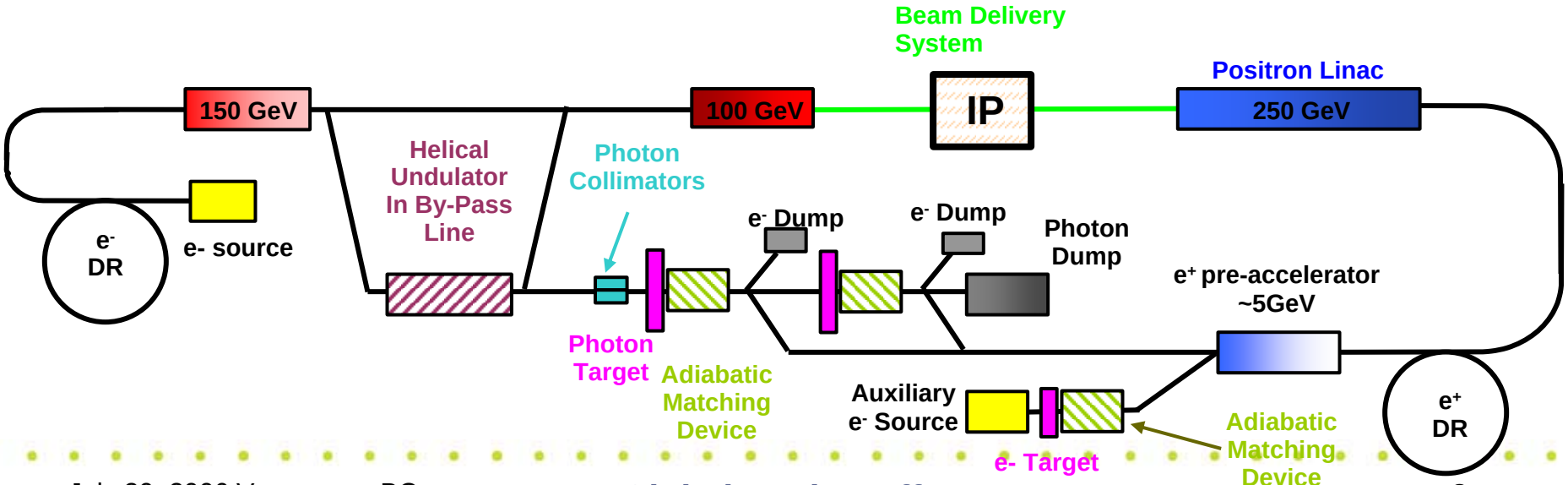
Positron AS/GS Review

John C. Sheppard

Design Status

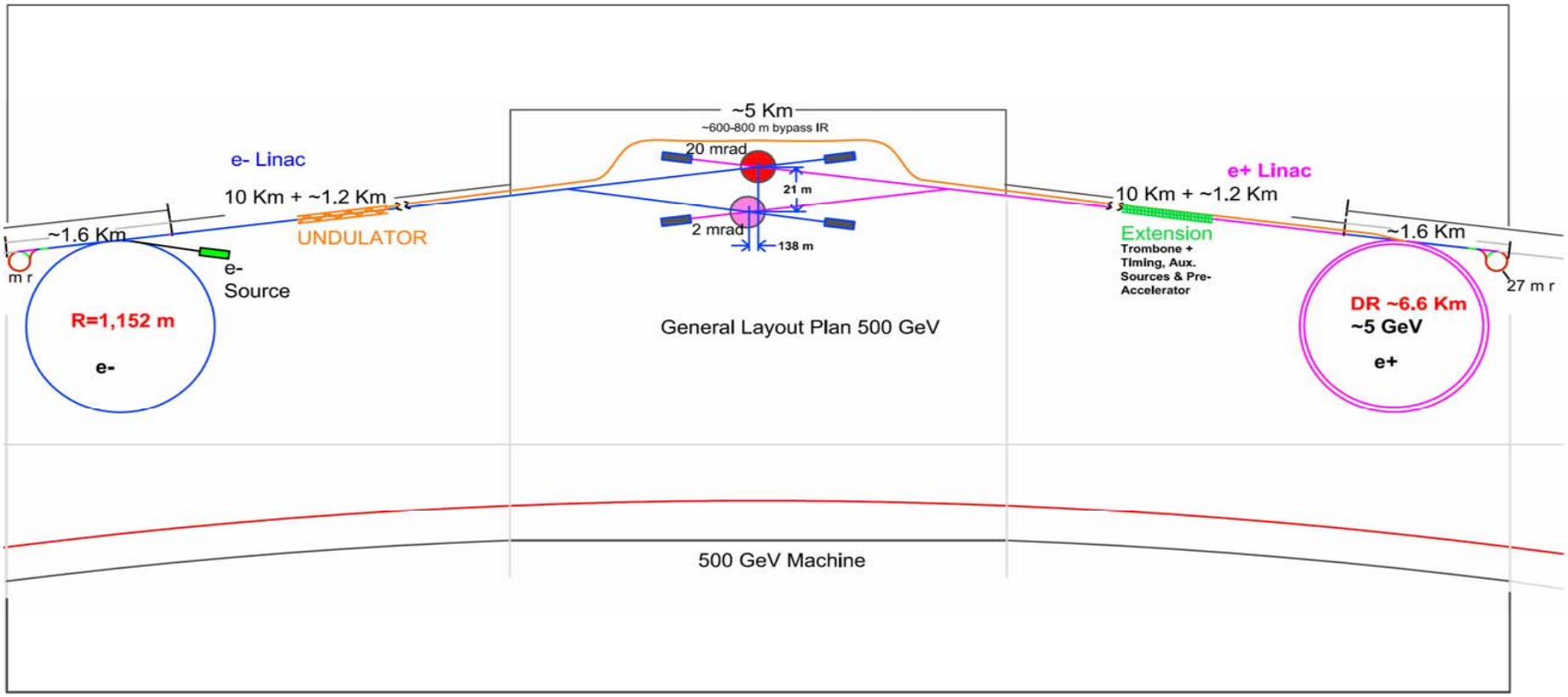
Layout of ILC Positron Source

- Photon production at 150 GeV electron energy
- K=1, λ=1 cm, 100 m long helical undulator
- Two e+ production stations (1 as backup) + KAS
- Pulsed AMD (shielded target)
- Keep alive auxiliary source is e+ side
- Timing Insert and Trombone in PML Extension



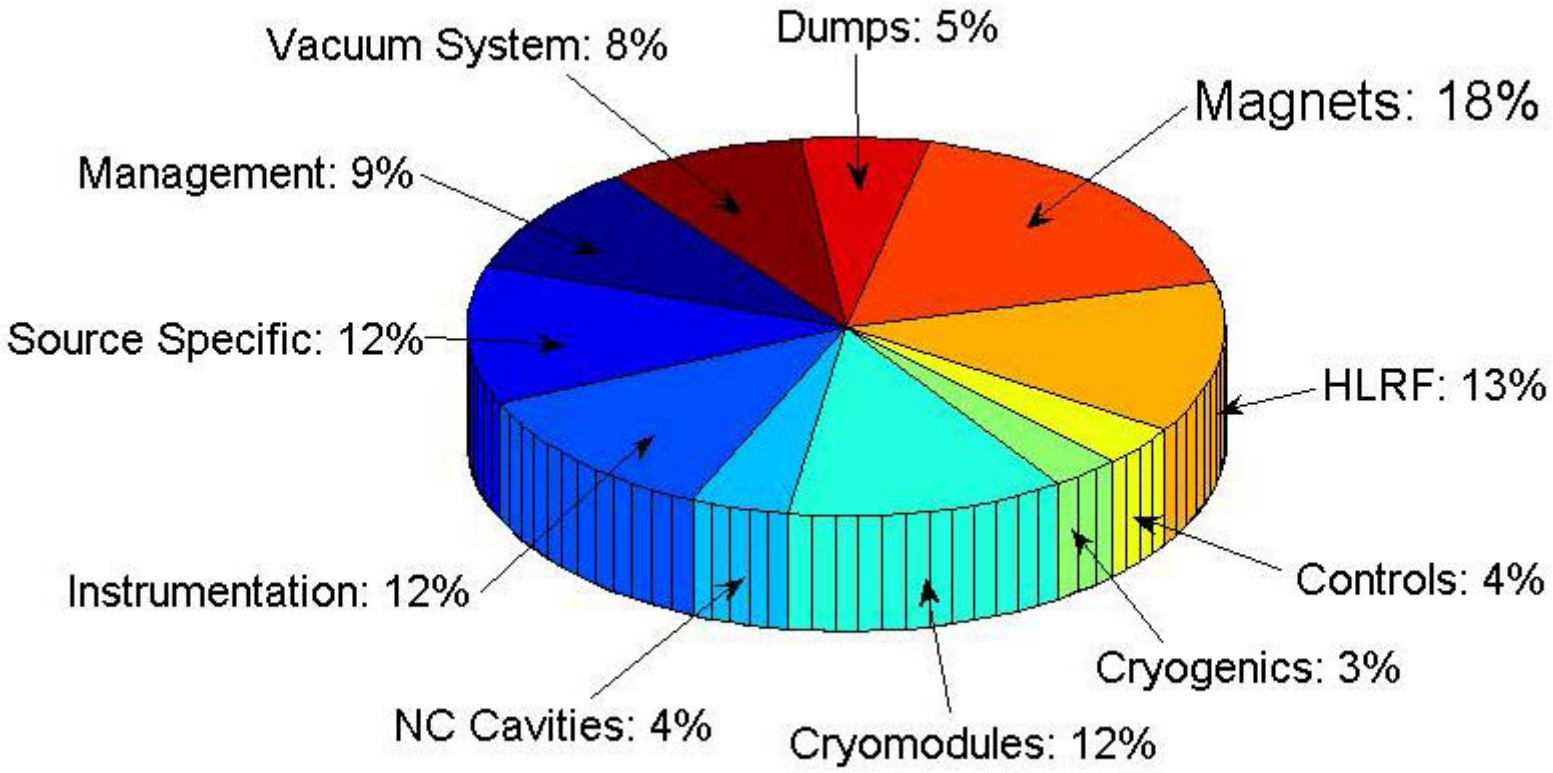
Design Status

Positron System Site Layout



General Elevation View

Major Cost Drivers



Note: CF&S + Install = $\sum$TS + $\sum$GS

Cost Roll-Up Status

- Reports back from all TS except for Magnet PS
- Reports from all GS
- More than 90% costed(?)
- Worry that ED&I is missing
- Inventory check in progress
- Not done cost review
- Little value engineering
- +10-20% for what's missing
- Too early to say what savings to be garnered from extensive review (certainly reduce the known unknowns)
- Significant "hidden costs" associated with CF&S and RF costed in other systems also KAS e-Driver

Possibilities for Cost Reductions

- Halve BPMs and Correctors in long transport line
- Reduce BDS excursion
- Eliminate KAS
- Conventional positrons but keep civil construction for polarized source (most expensive)
- Conventional positrons w/o civil construction for polarized source (most restrictive and ultimately most costly for e+ polarization)

Plans and Goals

- This workshop:
  - make sure everyone has the same inventory
  - understand what is missing (ed&I, testing, mapping…)
  - understand information control protocols
- For Valencia:
  - review numbers
  - quantify the what if's using ILC CE costs
  - consistent design and cost models

Towards the TDR

- Undulator, amd, target station development
- Rf development as needed
- Optics development with start-to-end simulations
- System optimizations
- 2-3 formal positron system collaboration meetings per year

Towards the TDR

GDE/ Positron & Electron Source

Conveners: A. Brachmann (SLAC); M. KURIKI (KEK); J. SHEPPARD (SLAC)
July 20, 2006: SUB 207: 13:30 – 18:00

13:30-14:10: Axel Brachmann : Electron Source Status and Plans

14:10-14:50: John Sheppard : Undulator e+ Source Status and Plans

14:50-15:30: Masao Kuriki : Compton e+ Source Status and Plans

16:00-16:30: Jim Clarke : EuroTev e+ Source Activities

16:30-17:00: Jeff Gronberg : e+ Target and AMD Status and Plans

17:00-17:30: A. Mikhailichenko: e+ Undulator Considerations

17:30-18:00: J. Sheppard et al: e+ Beyond Vancouver