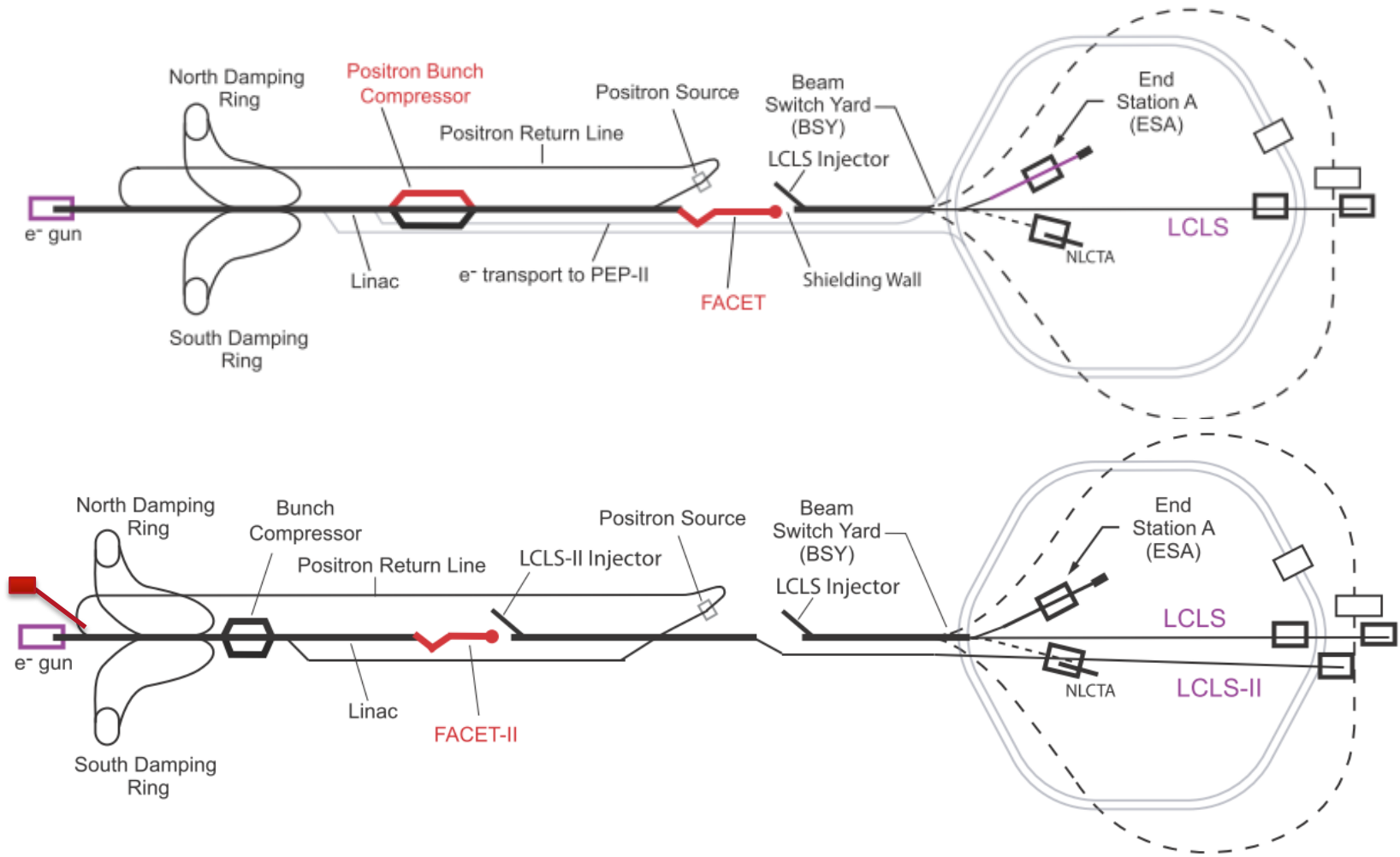


Facet II Plans

Vitaly Yakimenko
November 20, 2012



FACET II



Beams at Facet II

SLAC

Injectors	Beam	Energy [GeV]	$\epsilon_{NX} \times \epsilon_{NY}$ [$\mu\text{m} \times \mu\text{m}$]	$\sigma_X \times \sigma_Y$ [$\mu\text{m} \times \mu\text{m}$]	$\sigma_Z \times \Delta E/E$ [$\mu\text{m} \times \%$]
Thermionic	3nC e ⁻	10	30 x 3	20 x 20	40 x 1
	1.5nC e ⁺	10	30 x 3	20 x 20	40 x 1
Photoinjector	20pC e ⁻	10	0.1 x 0.1	1 x 1	2 x 1
	1nC e ⁻	10	1 x 1	3 x 3	5 x 1
	6nC e ⁻	10	5 x 5	10 x 10	20 x 1
	3nC e ⁺	10	30 x 3	20 x 20	40 x 1
Witness photoinjector	0.1nC e ⁻	0.1	1 x 1	50 x 50	20 x 0.1
Lasers	Energy / Power [Joule / TW]	Rep rate [Hz]	τ [fs]	λ [μm]	
Tl: Sapphire	1 / 30	10	30	0.8	
CO ₂ laser	0.1 / 0.1	120	1000	10.2	
Gamma beams (Inverse Compton)	Energy [GeV]	Intensity	Rep rate [Hz]	$\sigma_X \times \sigma_Y$ [$\mu\text{m} \times \mu\text{m}$]	σ_Z [μm]
Tl: Sapphire	1.8 GeV	10 ¹⁰	10	5 x 5	10
CO ₂ laser	150 MeV	10 ¹⁰	120	5 x 5	10

Facet II Program and people



J. Seeman, SLAC (Accelerator)

R. Hettel (Injector Test Facility)

W. White (Lasers)

M. Hogan, J. Frish SLAC (Experimental Area)

1. C. Joshi **UCLA** (Electron driven DWFA)
2. P. Muggli, **MPI** (experiments toward Proton driven PWFA)
3. B. Hidding, **HH-Universitaet Duesseldorf** (beam sources from PWFA)
4. G. Andonian, **UCLA** (DWFA)
5. A. Lindenberg, H. Durr, **SLAC** THz+fast magnetic switching,
6. D. Schulte, **CERN**, Research relevant to CLIC
7. J. Rosenzweig, **UCLA** (PWFA with high brightness driver, ion motion)
8. B. Carlsten, **LANL** (DoD experiments with MeV gammas)
9. V. Litvinenko, **SBU/BNL** (NP with sub-GeV gammas)
10. ... **LLNL**, γ - γ collider.
11. ... **KEK**, (Polarized Positron Source)
12. M. Palmer, **FNAL**, High brightness beam of muons
13. P. Emma, **LBL**, (induced wakefields, general accelerator R&D)
14. C. Pellegrini, FEL accelerator research. Emittance exchange
15. R. Nobel, Astro physics PPA
16. R. Assmann , **DESY**, FLASH

Continuation of FACET program, New at FACETII (not in plans for FACET)

Timeline for FACET II Scientific case

- Oct. 31 Names commitment for each line item
(Progress: 14/16)
- Nov.15 Deadline for individual contributions
(Progress: 6/16)
- Nov. 30 Initial draft of the document
- ~Dec.15 Workshop at SLAC (via WebEx)
- Jan.15 Online review by expanded SAREC
- Feb.15 Document Completion