

WG4

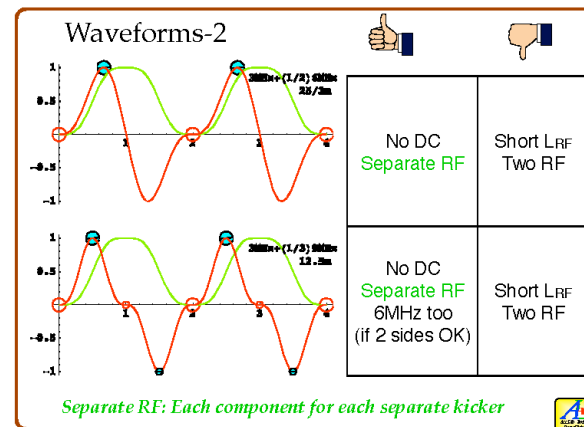
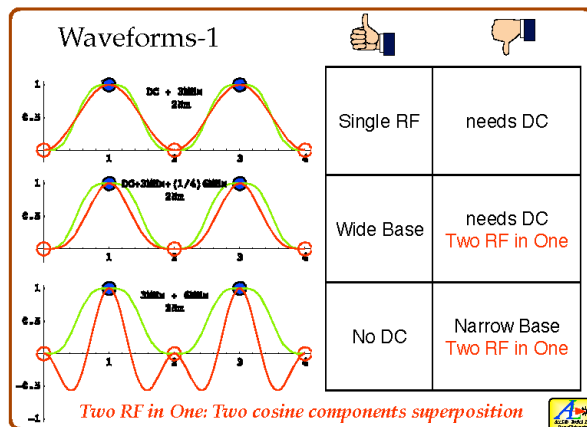
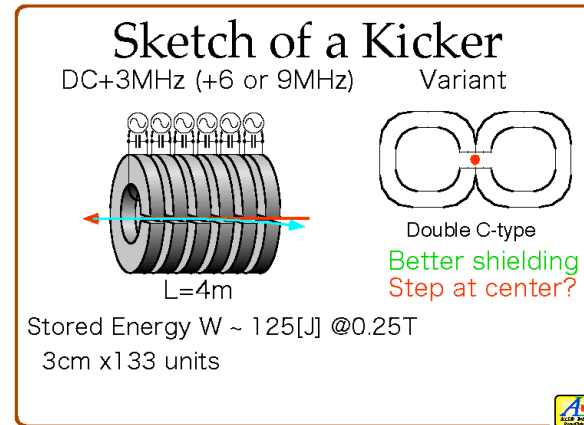
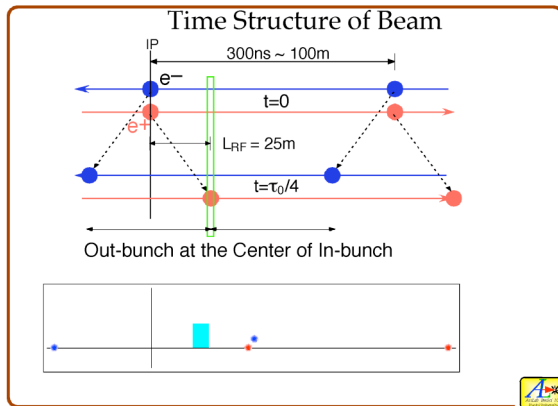
ICEPP, U-Tokyo

T. Sanuki

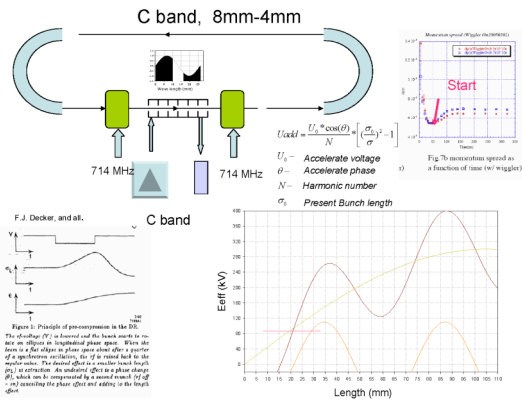
Japan-WG4

- ATF2
 - Achievement of 37nm beam size
 - Controlling beam orbit at 2nm level
- Development of BSM, BPM, ...
- Other studies
 - RF kicker for head-on collision
 - Bunch compression with C/X-band RF in DR
 - Low ripple DC PS
 -

RF kicker for head-on (Iwashita)



BC with C/X-band RF (Vogel)



Proceedings of LINAC2002, Gyeongju, Korea

THE C-BAND (5712-MHz) LINAC FOR THE SPRING-8 COMPACT SASE SOURCE (SCSS)

H. Matsunoto, Shigen, Takeda, KEK, Tsukuba, 305-0891 Japan
 T. Shintake, H. Baba, T. Inagaki, Y. J. Kim, K. Teraoka, H. Kitamura, SCSS group, RIKEN, Harima 679-5148, Japan

Table 3: Main parameters of the Choke-mode rf structure.

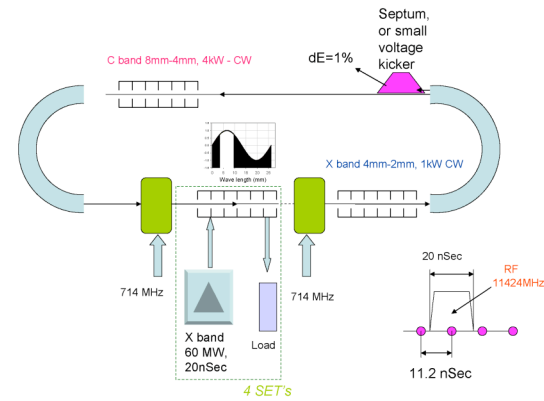
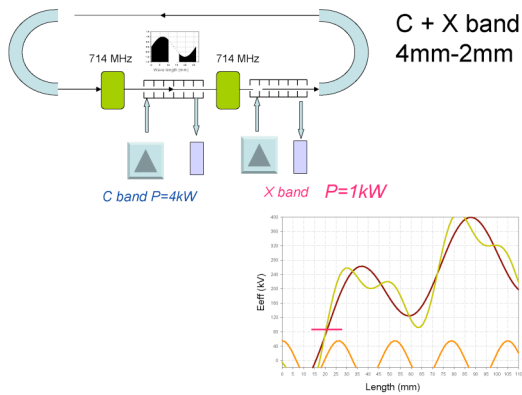
Frequency:	5712 MHz
Phase shift per cell:	$3\pi/4$
Electric field distribution on the axis:	Quasi-C-G
Quality factor (q, average):	10256
Attenuation parameter (τ):	0.53
Filling time (τ_f):	290 nsec
Shunt impedance (r, average):	58.5 M Ω /m
Ratio of E_z/E_x :	2.2 (max.)
Iris aperture ($2a$):	up-stream: 17.330 mm down-stream: 13.587 mm
Disk thickness ($2b$):	4 mm
Number of cells:	91
Number of Couplers:	2
(field symmetry & double feed)	
RF structure active length:	1.8 m

$E = \sqrt{R_{sh}} * 2 * \alpha * P$

$L = 1 \text{ m}, P = 4 \text{ kW}$

$U = 167 \text{ kV}$

Single cell cavity
 For 150kV, P=60 kW!



2004年12月以降

- Second Mini-WS in Nano Project at ATF
 - KEK, Dec. 11 - 12, 2004
 - Japan, Europe, SLAC
- ATF2 Workshop
 - SLAC, Jan. 5, 2005
 - 50 people / 20 presentations

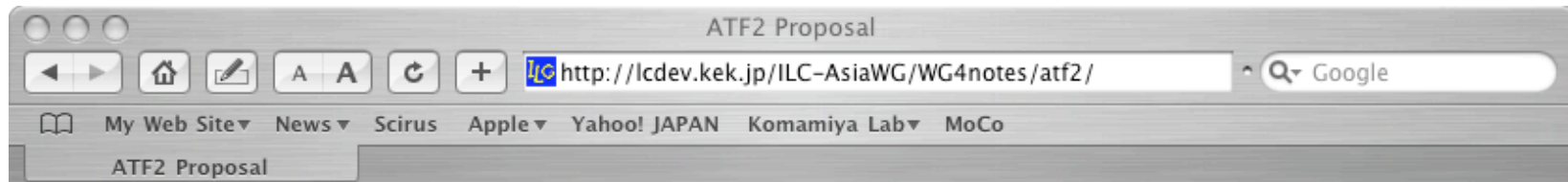
Summary of ATF2 WS

SLAC Jan.5

- ATF2 is an important project for ILC
- Continue ATF2 project development
- Adopt ILC-like optics
 - Study BC; smaller β_{Y^*} ; variable L^* ; collim.
- Improve extraction line, install sextupoles, continue study to decrease extracted beam emittance
- Study consistency of all systems with goals A and B (e.g. fast ion inst);
- Continue R&D on two fundamental monitors: IP BPM and IP BSM and other hardware & instrumentation
- Study possibility to reuse existing hardware
- Plan possible contributions from collaborating labs and institutes

ATF2 document (proposal)

- Editorial board
 - Seryi, Blair, Sanuki (ILC-WG4 conveners)
- 21 responsible authors



Toward "ATF2" Proposal

February 4, 2005

NEWS :

Apr. 15, 2005 [Modified Author list](#).

Mar. 25, 2005 [Incomplete 0th draft \(soucefile and PDF\)](#) are **uploaded**.

Mar. 16, 2005 [Modified Author list](#).

Mar. 16, 2005 [Incomplete 0th draft \(soucefile and PDF\)](#) are uploaded.

Mar. 10, 2005 [Latest files \(soucefile and PDF\)](#) are updated.

Mar. 4, 2005 [Pictures](#) are updated.

Mar. 3, 2005 [Latest files \(soucefile and PDF\)](#) are updated.

Dear WG4 participants,

At the recent [ATF2 workshop](#), which was held at SLAC in January 5, (with about 50 people attaned and about 20 reports presented), it was recommended to continue development if the ATF2 proposal.

While further development of the ATF2 design (beam optics, critical beam instrumentation, etc.) will continue, we also need to document the proposal in a detailed and coherent way. A written proposal will help to communicate our intent to the international community and will help in determining the contribution from international partners.

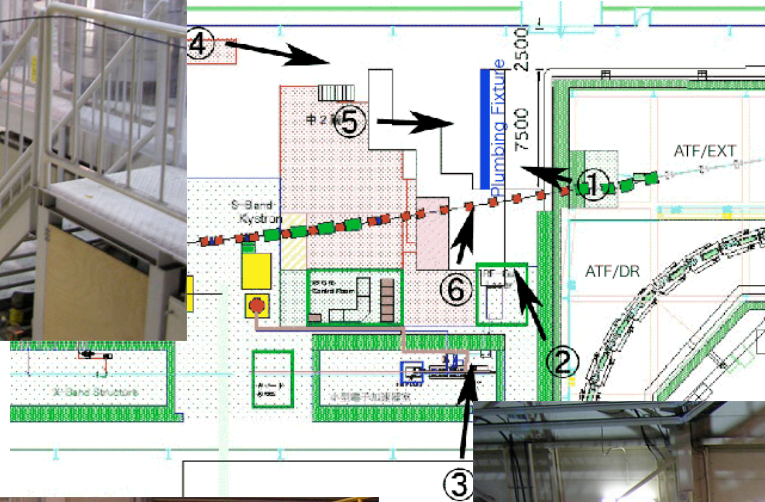
As WG4 conveners, we (Tomoyuki, Andrei, Grahame) volunteered to be the core members of the editorial board for the ATF2

ATF2 document (proposal)

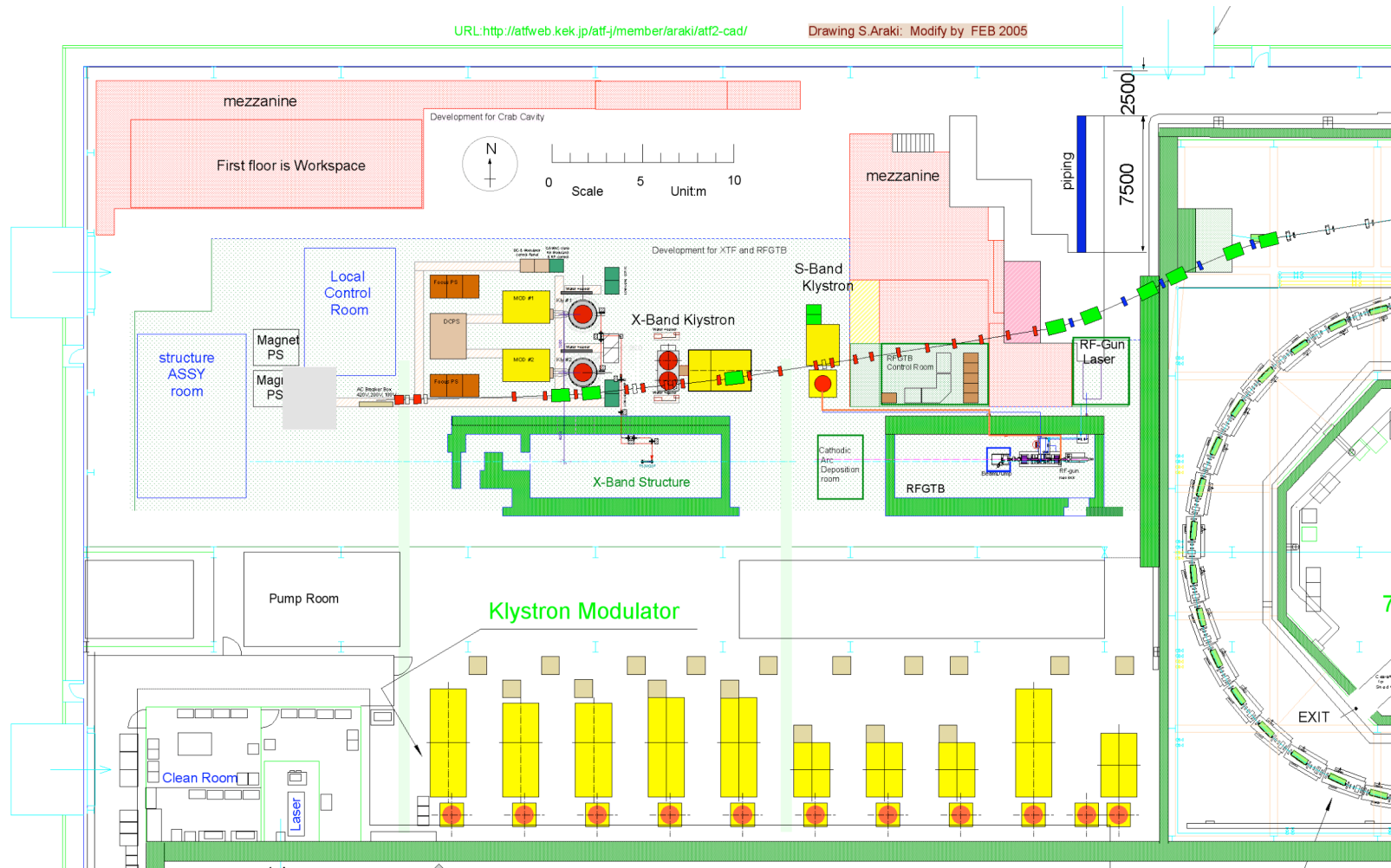
- 73 authors, 19 institutes
- 21 responsible authors
 - A few sections are missing
 - ~70 pages
 - Duplicate / Missing material

LCWS 2005

- ATF2 informal meeting
 - ~20 participants
 - KEK site の説明 (Crab cavity R&D)
 - Budget



Baseline optics



Contributions(含：口約束)

- Movers & magnets (SLAC)
- Q-BPM (PAL)
- Magnets (IHEP)
- High-power Laser (UK)

今後

- ATF2 の host として、責任を持って主導する
- Mini-ILC model
 - Document
 - Budget
 - コンポーネントの調達
 - 魅力あるテーマ
- 他の研究項目にも少しずつ手を広げる(?)
 - 絶望的に足りないマンパワー