

# highlights of Nanobeam'05 & impressions from KEK

# Nanobeam'05

- second ICFA Nanobeam workshop after Nanobeam'02 in Lausanne organized by Ralph and myself
- mixture of different communities (ILC, CLIC, light sources, micro- and nanobeam applications, particle physics, lasers, beam sources)
- 96 participants - many from Japan, about 13 from US (4 SLAC, 2 BNL, 1 LLNL, 1 LBNL,...), ~22 from Europe (~8 UK, 4 DESY, 2 CEA, 1 CERN,...)
- discussion of ATF performance & ATF-2 design (test s.c. final quadrupoles?, test octupole tail folding?, man power and budgets, design report 2<sup>nd</sup> volume\_, stability issues in ILC, advanced beam diagnostics, fast feedbacks, laser wire, stabilization (nanoBPMs, STAFF etc.)...
- SCSS SASE FEL (Shintake's project) has been approved
- several collaborations/contacts with CLIC initiated (Spring-8, Oxford, KEK, BNL, CEA)
- web site <http://wwwal.kuicr.kyoto-u.ac.jp/nanobm>  
(all presentations can be found under 'agenda')

# Nanobeam'05 working groups

**WG1: Laser Wire**

**WG2a: BDS-design and interaction region**

**WG2b: Stabilization and beam control**

**WG2c: Future R&D Plans**

**WG2d: Final Focus Q-magnet**

**WG3a: Low Emittance Sources**

**WG3b: FELs/Radiation Sources**

**WG3c: Other Sources**

**WG4: Physics with High Intensity Laser Beam**

more details at  
CLIC meeting  
next week  
Friday

# Some highlights from KEK

Lowering the feedback gain has increased the KEKB luminosity from  $1.3$  to  $1.5 \times 10^{34}$  earlier this year. The noise from the feedback seems to lower the luminosity.

This summer, the KEKB optics was changed in preparation for the crab cavity. The luminosity is  $1.2 \times 10^{34}$  instead of  $1.4$ - $1.5 \times 10^{34}$  before the optics change. The synchrotron sidebands are enhanced and it is no longer possible to operate as close to the half integer resonance as before. The spurious dispersion is comparable to before.

Remarkable KEKB tune shift measurements by T. Ieiri with a pilot bunch in collision mode show a huge change in tune shift with current of the pilot bunch when the preceding bunches are in collision and no gaps are introduced in the bunch train. It is argued that this effect may be caused by ions generated in the IR region.

KEK-JAEA joint ERL FEL project was kicked off (>70 participants)

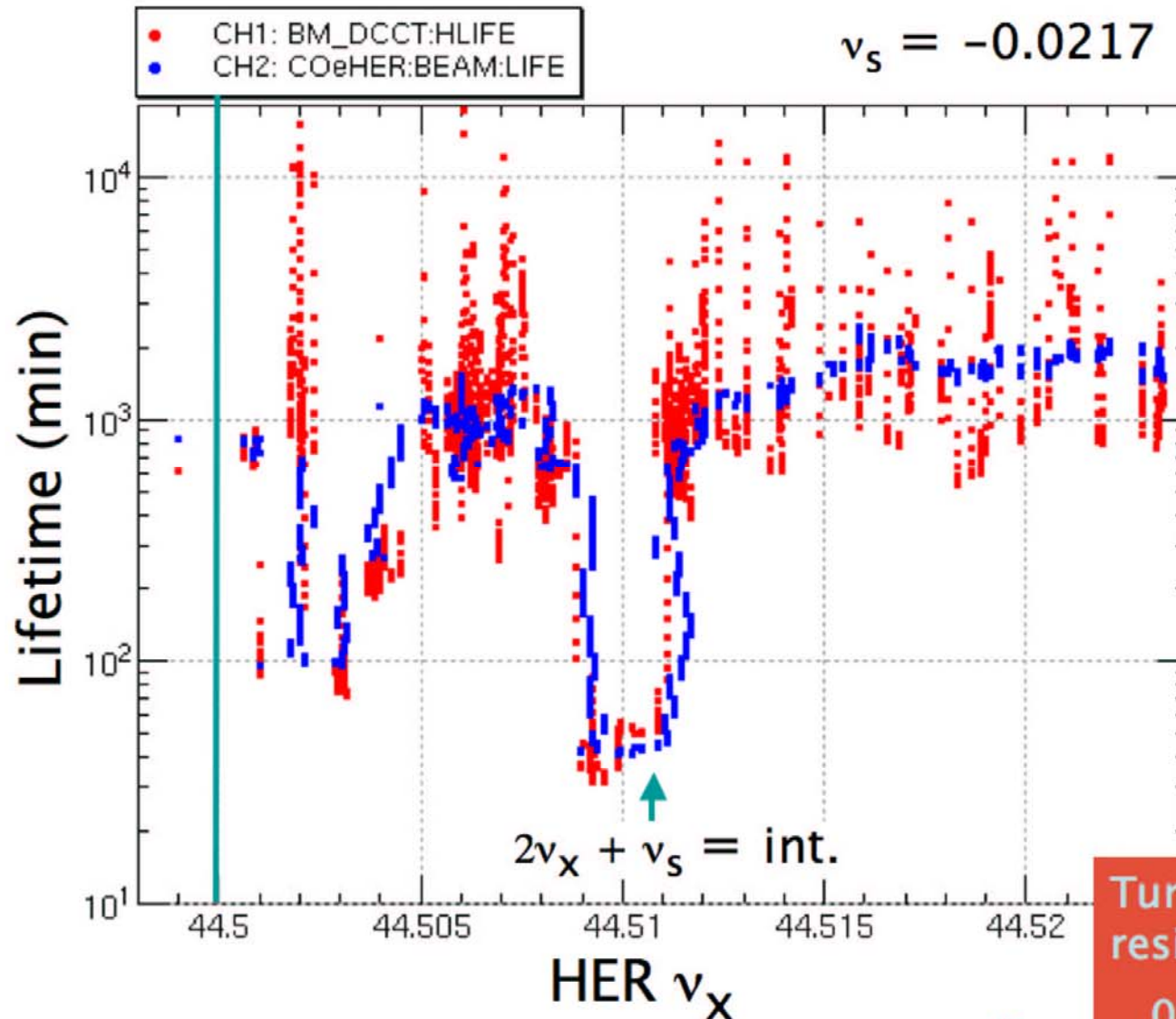
Experiment in KEK PS & theory of quasi-adiabatic transition crossing using induction rf.

Discussion on CLIC polarized positron source with J. Urakawa, T. Omori, and M. Kuriki.

Discussion on fast pulsing device (100 A at 500 kHz) with K. Takayama.

possibly extract incoherent tune shift from shift in sidebands?

# Synchrotron-betatron resonance in HER



*picture  
courtesy  
of K. Oide*

Tune shift by  
resistive wall  
0 A  $\rightarrow$  1 A





J-PARC

日本原子力研究所 東海研究所

~1 billion Euro project  
ν to SuperKamiokande  
kaon physics  
neutron source

平成16年2月撮影



241 MeV proton linac (underground)  
- biggest linac building in the world?

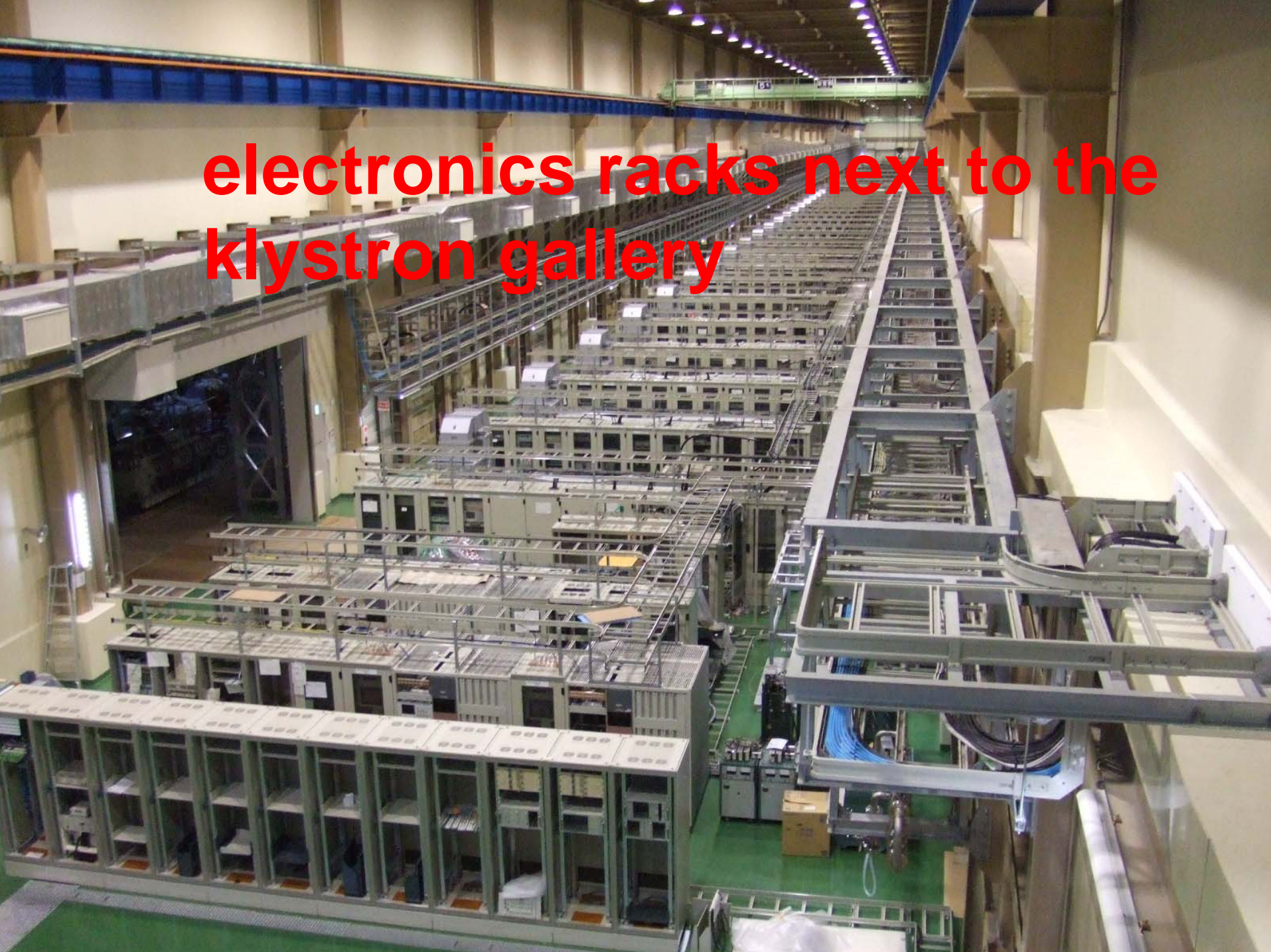


in front of the linac building





**electronics racks next to the  
klystron gallery**








**3 GeV RCS (ring tunnel on the right)  
plus extraction & transfer lines;  
auxiliary tunnel underneath**





**1 of 12 novel induction rf  
units for the 3 GeV RCS**



# extraction line for SuperK







**50 GeV synchrotron  
- smallest tunnel of all**