

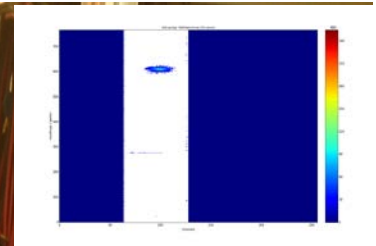
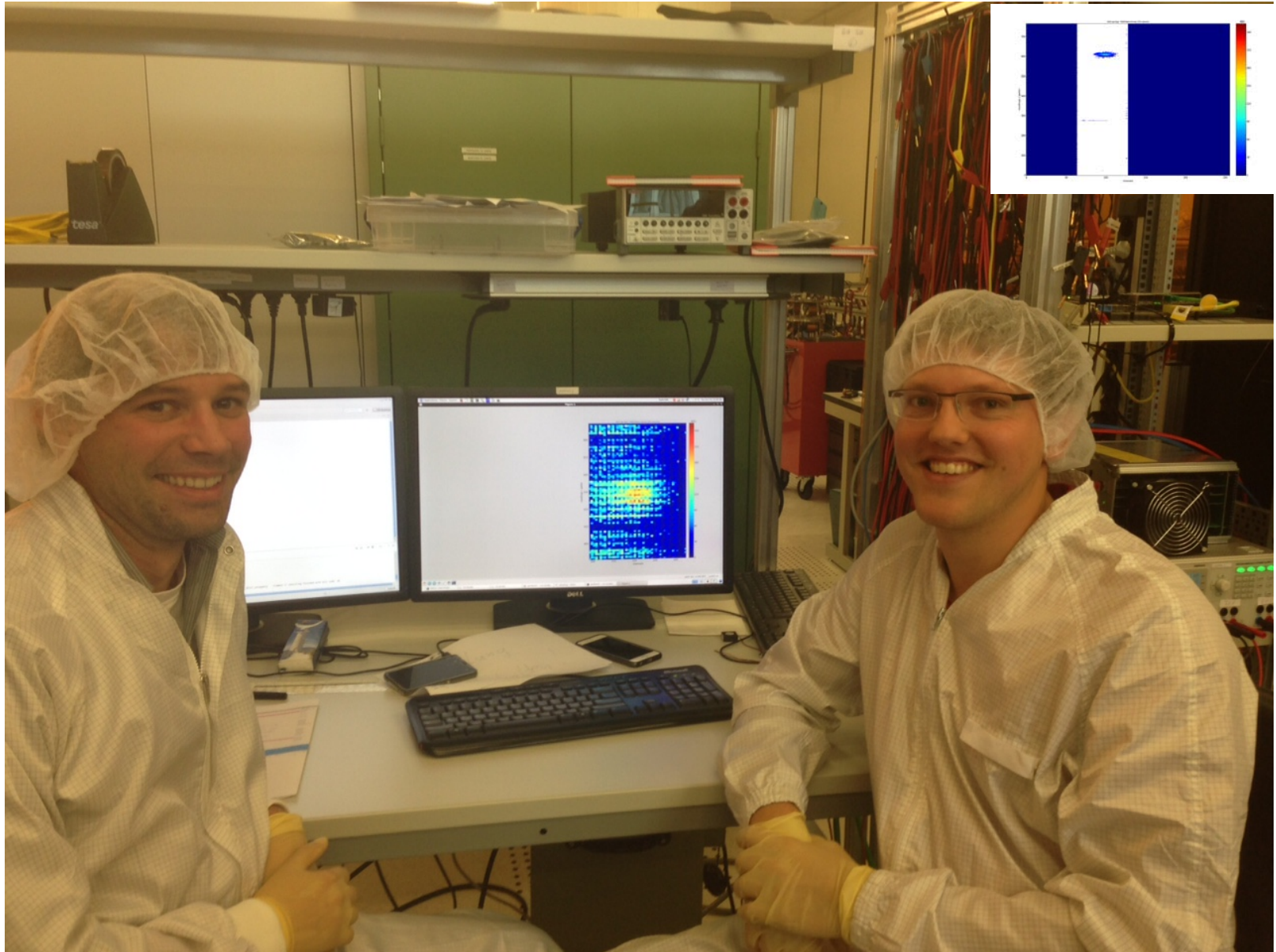
Schedule of BPAC Meeting see

<https://kds.kek.jp/indico/event/19537/timetable/#all.detailed>

3 Sessions:

- VXD common session (Installation, Services)
- PXD Session
- SVD Session (Kavli-Institute on Tokyo University Campus)

Highlight: First PXD (Belle II) Module



Percent of active pixels/half ladder

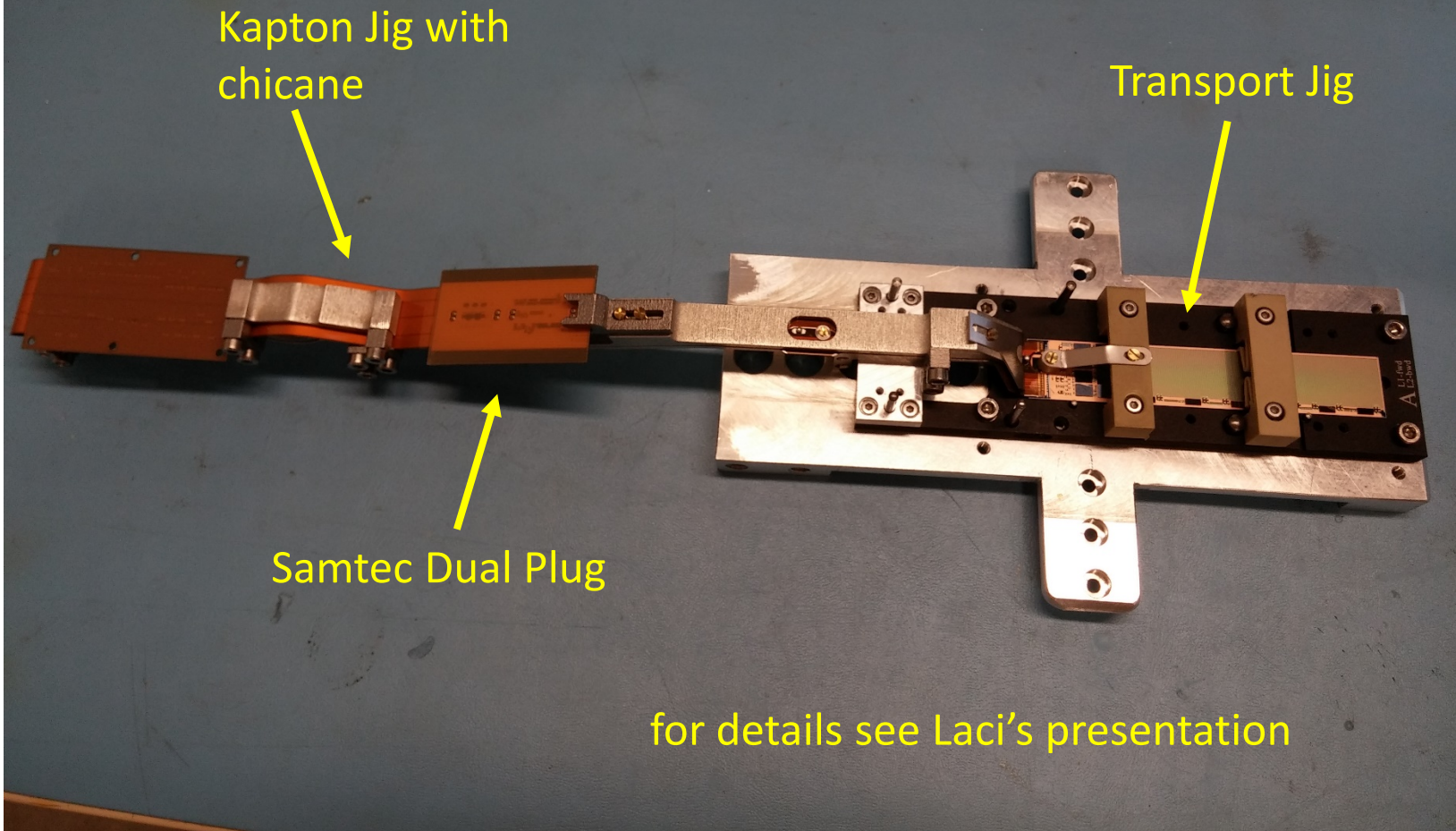
Jelena's Talk

	W30	W35	W36
IF	<u>0</u>	98.44	98.96
OF1	100.00	98.44	98.96
OF2	99.48	98.96	99.48
OB1	97.72	<u>99.40</u>	0
OB2	99.48	0	98.96
IB	97.92	0	99.48
Total	83.3	66.6	83.3

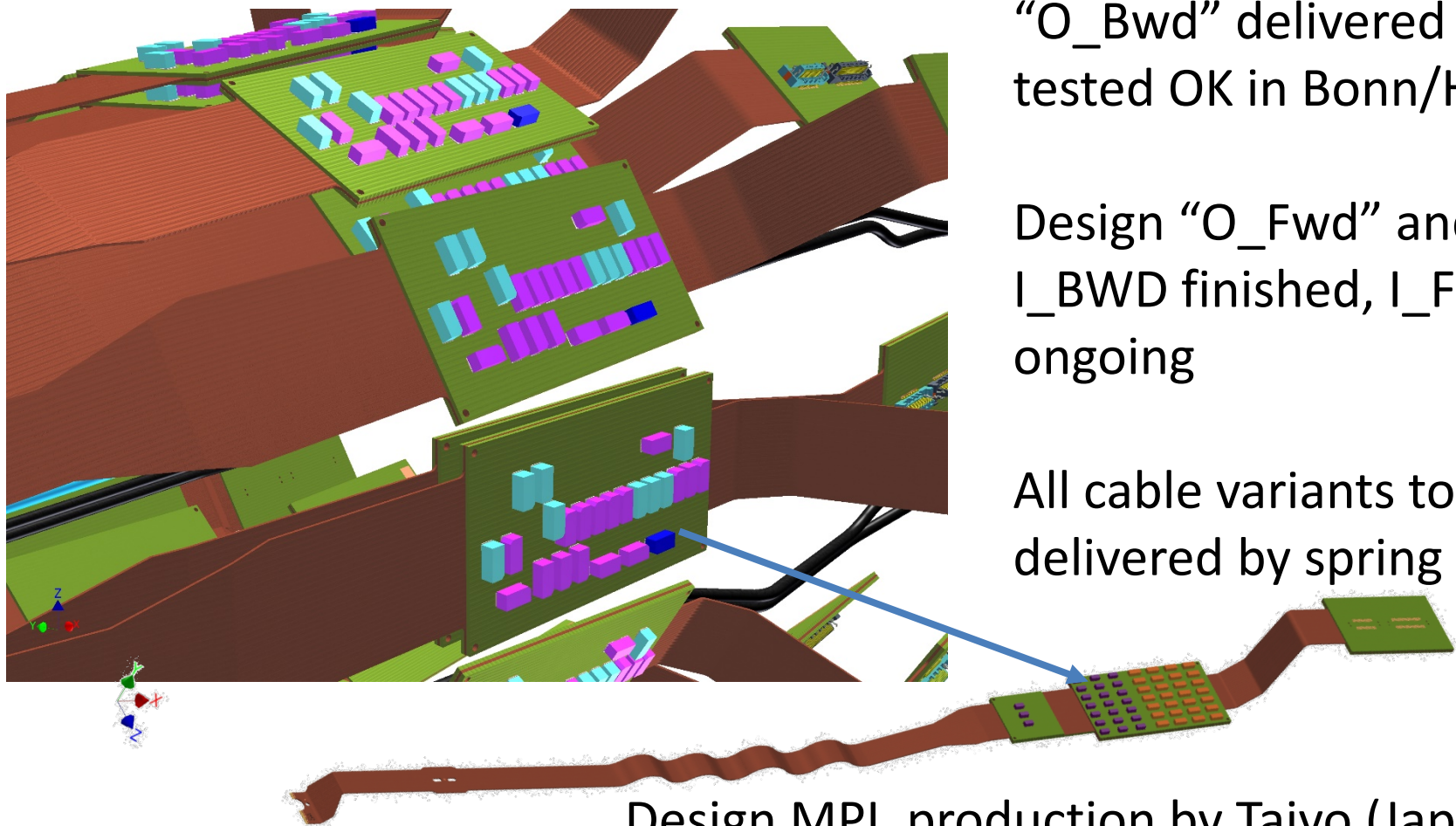
- 14/18 (77.8%) working sensors
- **10/18 (55.6%) prime grade sensors (>99%)**
- 4/18 (22.2%) second grade sensors

3/30 wafers fully processed and tested

Kapton Soldering and Wire Bonding



4 types: layer 1 (I_Fwd, I_Bwd), layer 2 (O_Fwd, O_Bwd)



First samples (15)
“O_Bwd” delivered & tested OK in Bonn/HLL

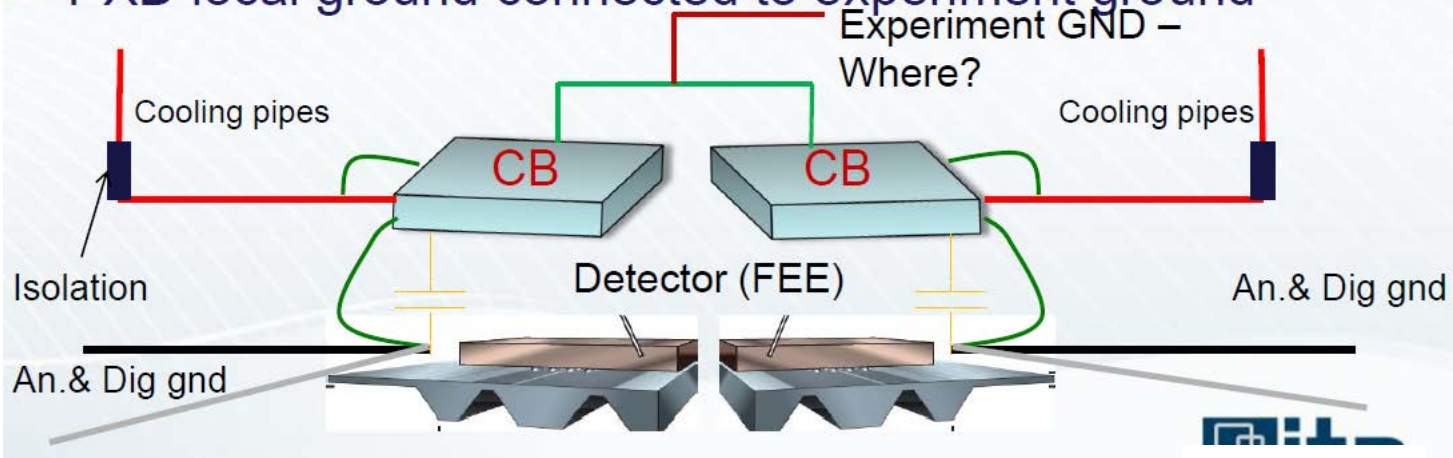
Design “O_Fwd” and I_BWD finished, I_FWD ongoing

All cable variants to be delivered by spring 2016

Design MPI, production by Taiyo (Japan)

PXD Grounding Concept

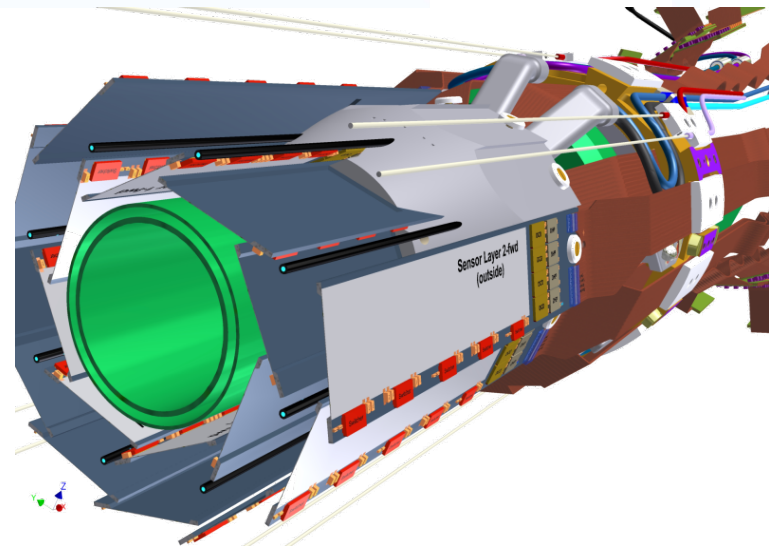
- Cooling blocks (both sides) connected via low impedance
- Cooling pipes grounded
- PXD local ground connected to experiment ground



Analog and digital ground connected at the Kapton level

Single point ground for each side connected to respective SCB

connect SCBs via Al-coated N₂-pipes



- Application specific PS unit successfully used in the EMCM module tests
Production of 50 units is under way (includes spares).
- Pocket-Onsen system installed at KEK, tested successfully with HLT and EVB
Next steps: 30 kHz high rate test in 2015, DESY test 04/2016:
Here support needed (again) by KEK DAQ group
- Optical transmission (dock->DHH) tested for radiation hardness:
Glenair OK, now serious steps towards realization,
to be implemented for DESY test in April 2016

Slow Control & Cooling

- PS / DHE / JTAG control and startup sequences stable and in daily use, including software interlock.

IPMI interface for ONSEN with actual hardware successfully tested, but still lot of work to do on the software side ...

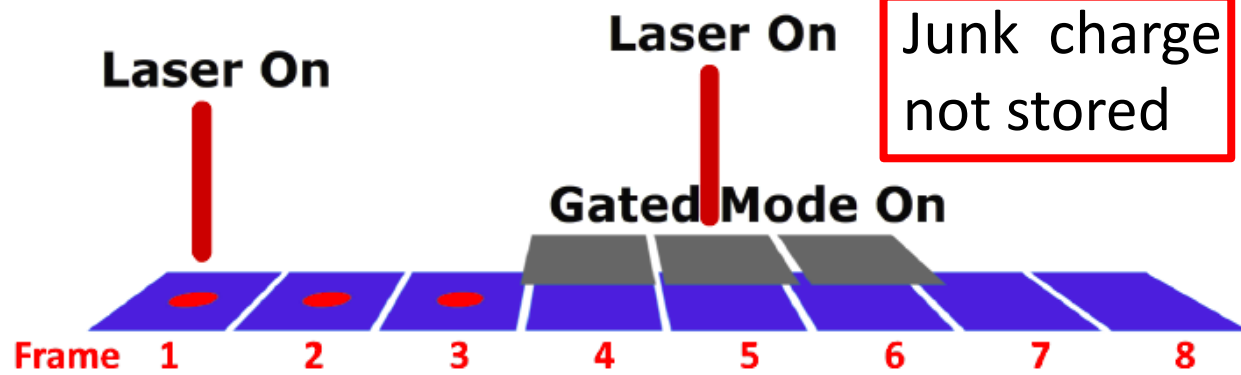
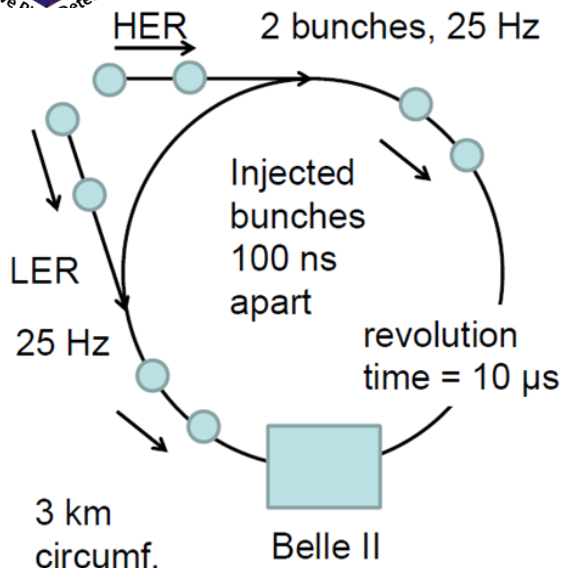
IBBelle CO2 cooling plant GUI in development for commissioning @ MPI

First GUI demonstrator according to new guidelines under development.
Milestone: Full system test during next test beam @ DESY (April 2016)

- CO2 Cooling unit (“IBBelle”) for VXD under construction at MPI (on schedule).

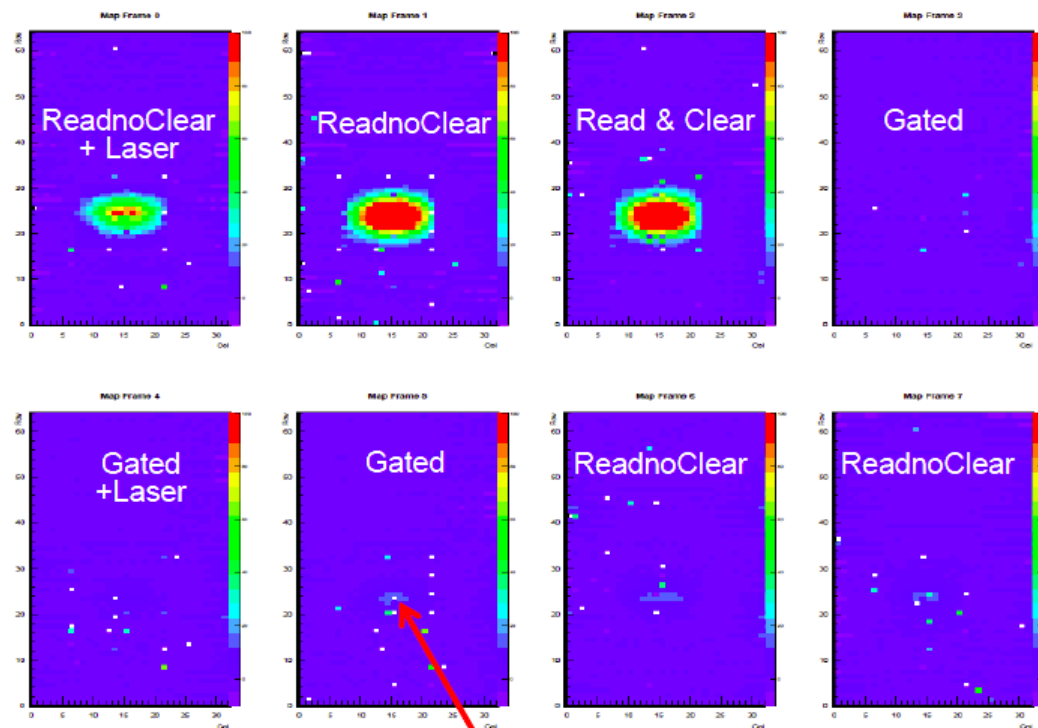
Private Meeting after BPAC Sunday session with Kimura-san:
TÜV initially involved in “certification” process, now new scheme:
IBBelle will be certified by KEK cryogenic engineers (Kimura, Kawai)

Gated Mode Operation



“Continuous” injection
($\Delta I/I$ very small)

OK on small PXD6 matrix,
to be verified now by on
a large PXD9 matrix

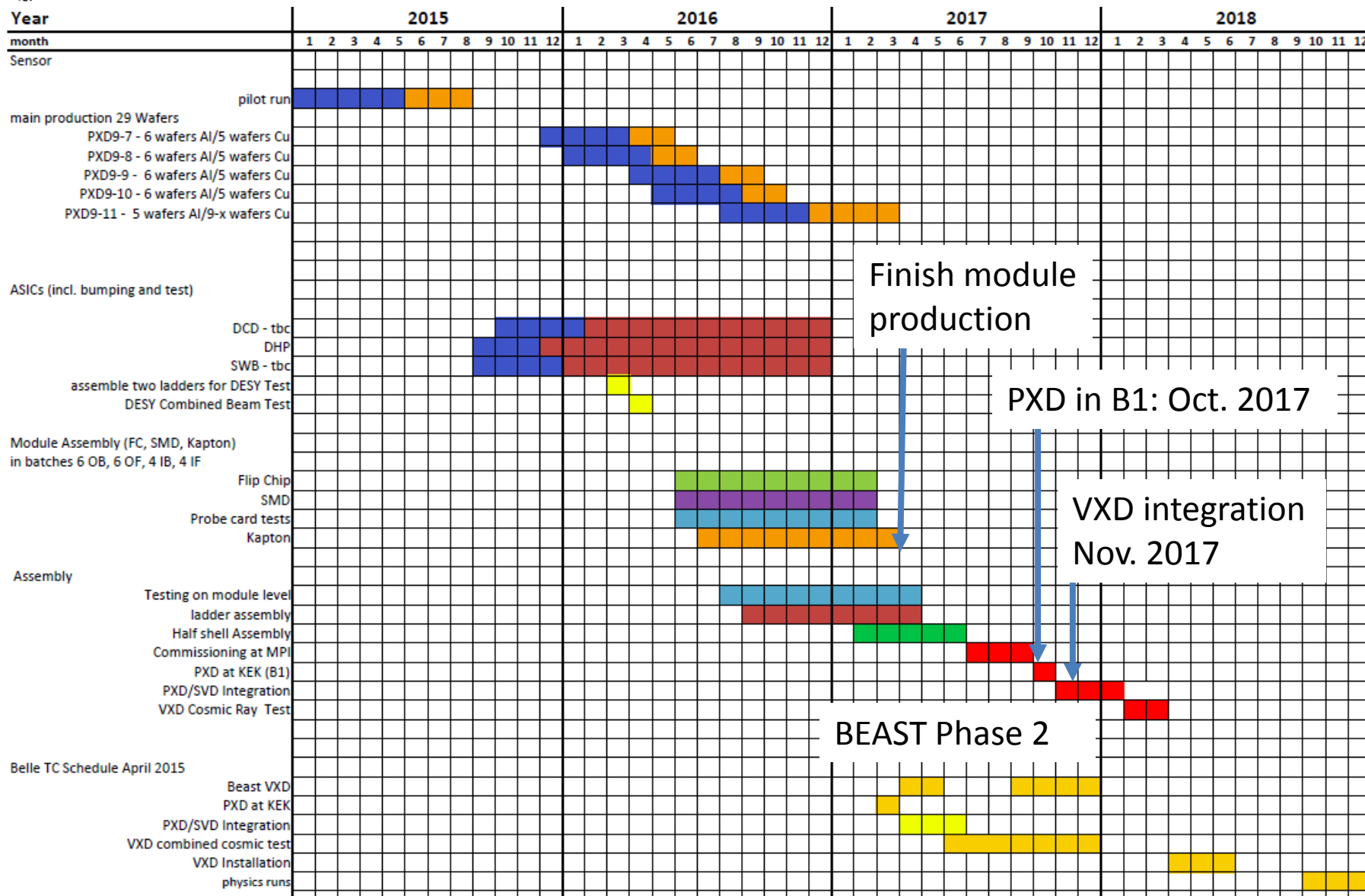


(for details see Christian Koffmane) ➤ Laser 1 μ s, 800mV

spot contours since rows sensitive for 100ns

- | | | |
|---|-----------------|-------|
| - Bare PXD9 pilot modules: | July 2015 | ✓ |
| - Decision of SMD site/process (-> HLL): | July 2015 | ✓ |
| - External ASIC review: | July 2015 | ✓ |
| - final ASIC submission: | Aug - Okt 2015 | (✓) |
| - first pilot modules assembled: | September 2015 | (✓) |
| - pilot module testing: | Sept - Nov 2015 | |
| - start main sensor metallization (Phase II/III): | December 2015 | |
| - final ASICs tested: | February 2016 | |
| - test beam (DESY) with final ASICs: | April 2016 | |
| - Install IBelle (Unit A) at Tsukuba hall: | Summer 2016 | |
| - Commission BEAST 2 detector: | February 2017 | |
| - PXD at B1: | March 2017 | (?) |
| - VXD Integration and Cosmic Tests (B1): | June 2017 | (?) |
| - VXD installation | Summer 2018 | |

Updated PXD Production Schedule



- Pilot run production (sensor) is done, 18 sensors in total
 - 14 sensors are usable ($\geq 97\%$ px eff: 77.8 % yield)
 - 10 sensors are prime quality ($\geq 99\%$; 55.6 % yield)
- First light on fully equipped PXD9 sensor
- Intensive test program with 2 (+ Kapton) and 1 (+hybrid) pilots
- Main sensor production: Start in December this year
- Based on pilot run learning curve: Updated schedule (= conservative, including some contingency) for PXD production, VXD integration in fall of 2017, in time for Phase 3
- Next major milestone: DESY test beam in April 2016