

# IP-BPM status and installation plan

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ATF2 LAPP meeting

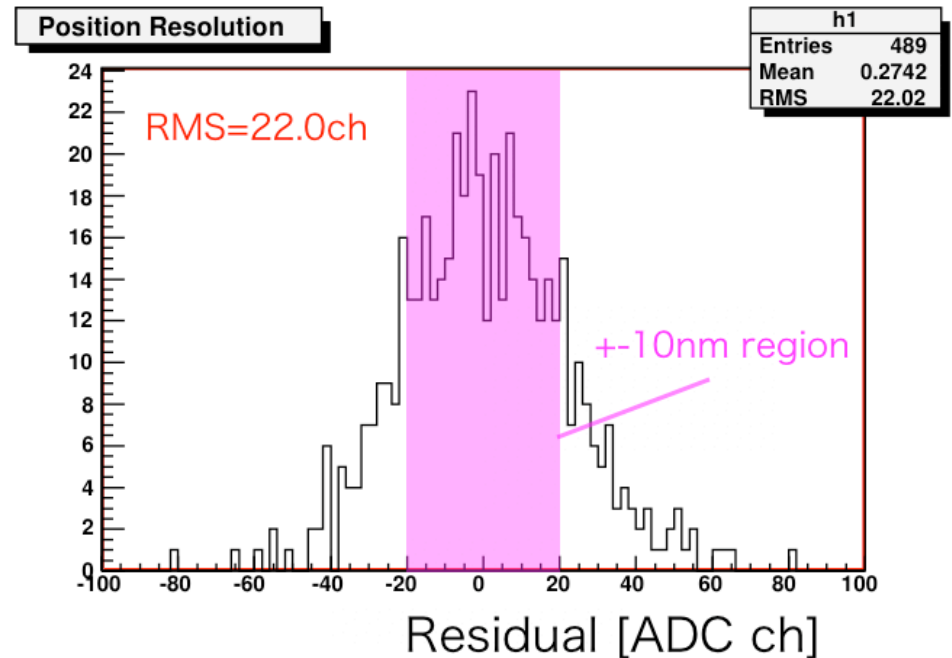
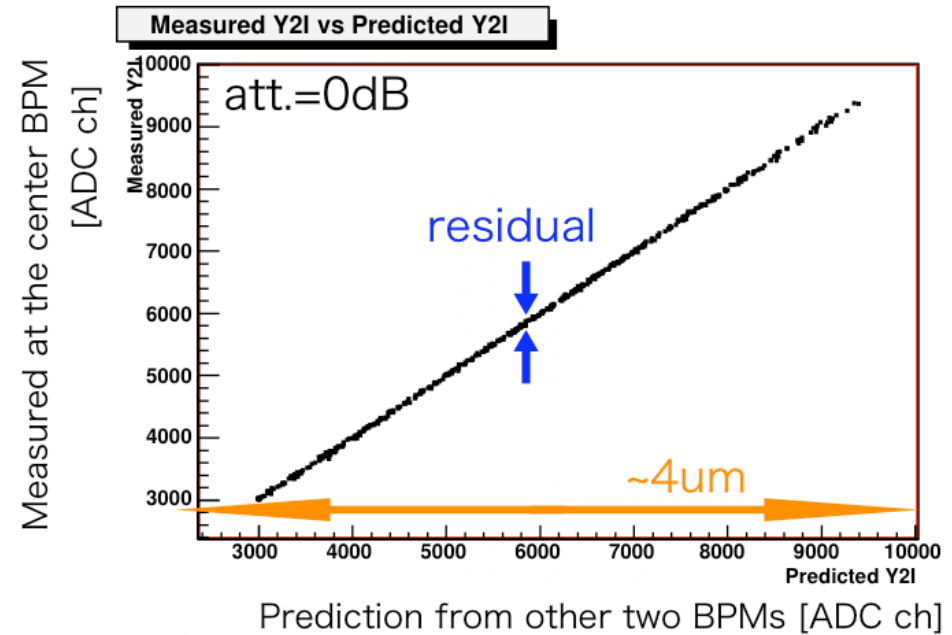
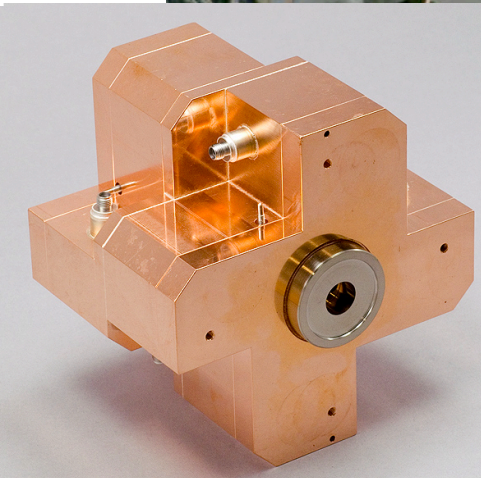
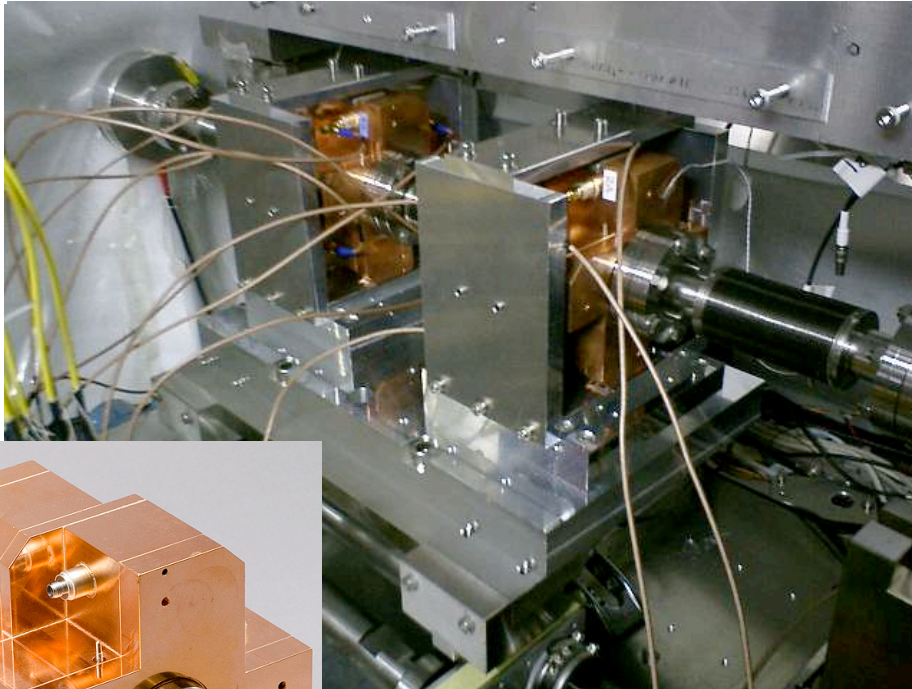
- Not going to repeat beam test results.
- Focus on description of the installation configuration of IPBPMs and relation to BSM.

# Goals for IPBPM

- Phase-1
  - demonstration of small (35nm) beam size
  - 10nm resolution BPM
  - include two BPMs in the beam size monitor system to monitor beam jitter during beam size measurement
- Phase-2
  - beam orbit stabilization to nm level
  - 2nm resolution BPM
  - development work will continue during phase-1 operation

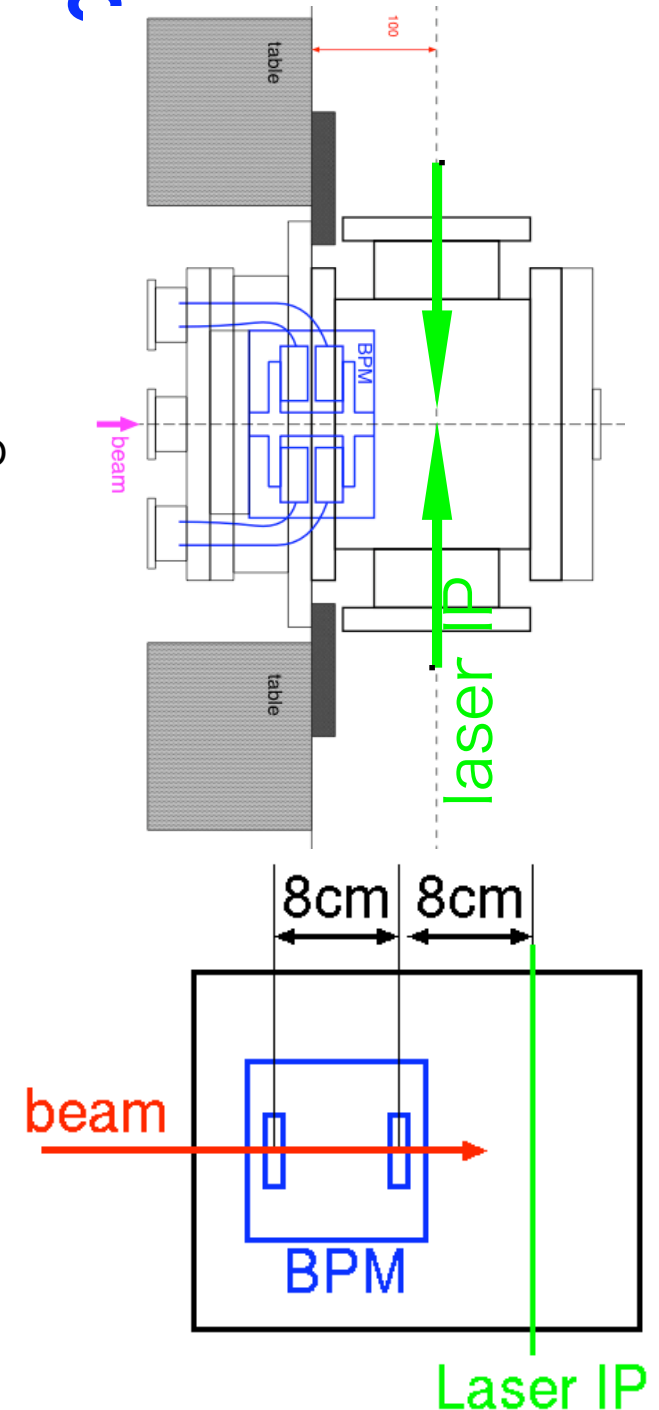
# Status

- No updates since last ATF-TB meeting
- 10nm resolution has been achieved, good enough for phase-1



# BSM chamber design

- Modify the BSM chamber and put a set of BPM as close as possible to the laser IP. Two beam position sensor cavities in a BPM block.
- New BPM block will be made. Basically same design, but not a vacuum tight model. Minor modifications to make it compact in transverse (shorter wave guides).
- Range of the BPM is 5 $\mu$ m, it defines the fiducial of beam orbit in transverse direction. Position of laser spot and final doublets etc. have to be aligned with respect to it. If the BPM is too away from the initial position of other devices, the BSM chamber can be re-aligned.
- Assume 10nm resolution for each sensor. Resolution to predict beam position at the IP is 14nm. This is 10% contribution to the 35nm beam size.



# BPM test setup

- During ATF2 operation in Phase-1, keep BPM development activity at the upstream free area (QF21X-QM16FF section). This has been discussed in weekly meetings. The existing IPBPM system will be located here at Phase-1.
- The one attached in the BSM will be used at Phase-1.
- At Phase-2 or if BSM is removed, the existing IPBPM system can be put at the IP.

