

Latest news and tracking results

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- Latest activities
- General news

Partners: BINP, CEA, CERN, CSIC-IFIC, EPFL, INFN-Frascati, SLAC, Uni-Liv, Uni-Man

Latest activities - I

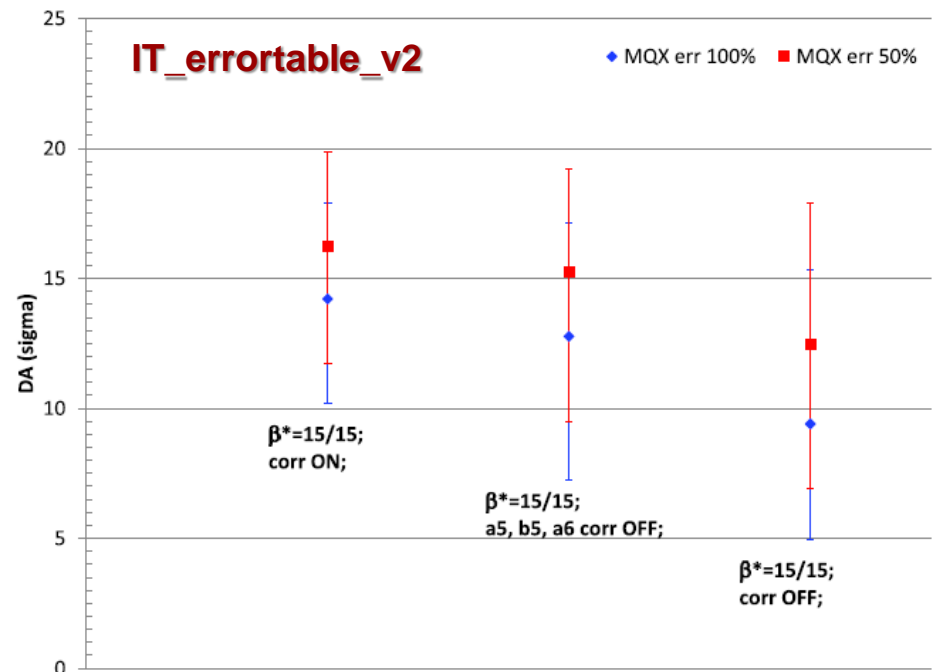
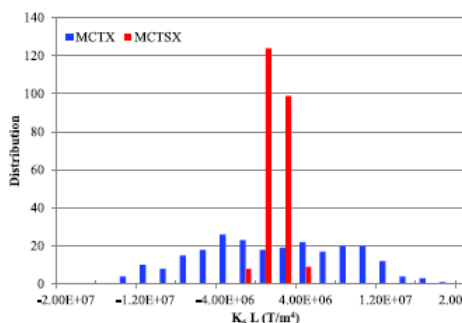
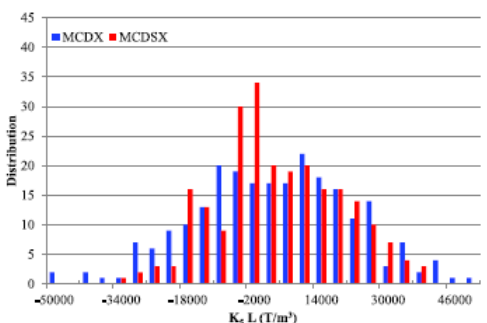
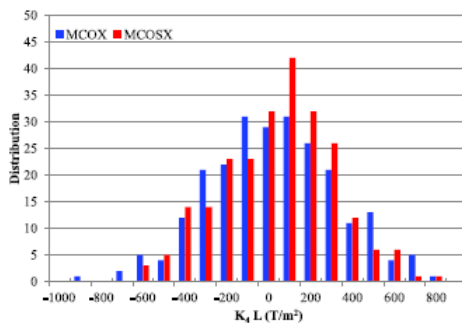
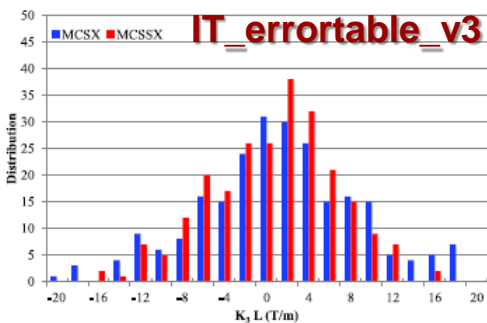
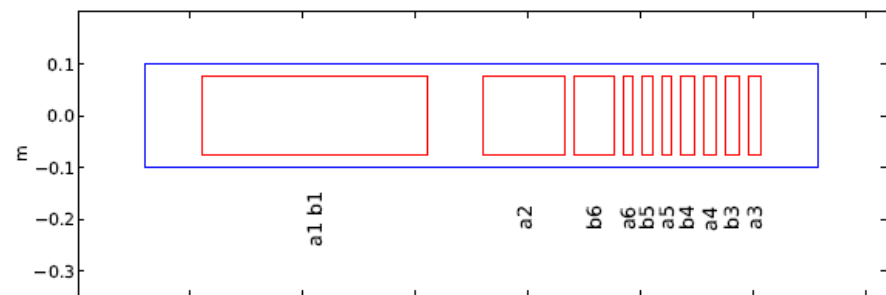
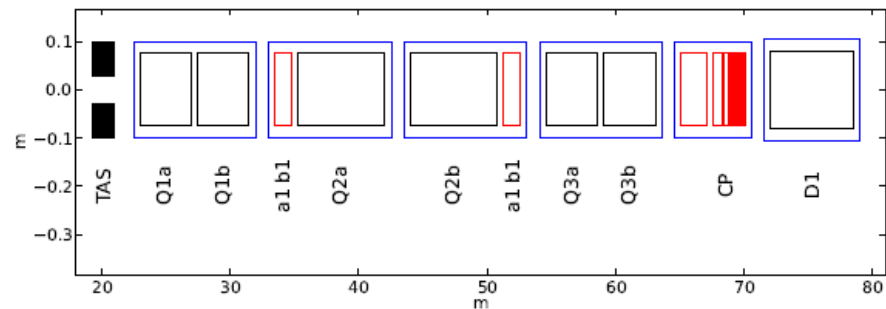
- Specification of triplet correctors (linear and non-linear)
- Evaluation of DA for SLHCV3.1b (IT with 140 mm and 150 T/m)
 - Several optics configurations to probe DA vs. beta*
 - Error in the magnets:
 - Arcs and IRs other than IR15: machine as built
 - IT magnets:
 - IT_errortable_v2
 - FQ specified by SLAC collaborators (61 or 65)

Latest activities - II

- Triplets correctors

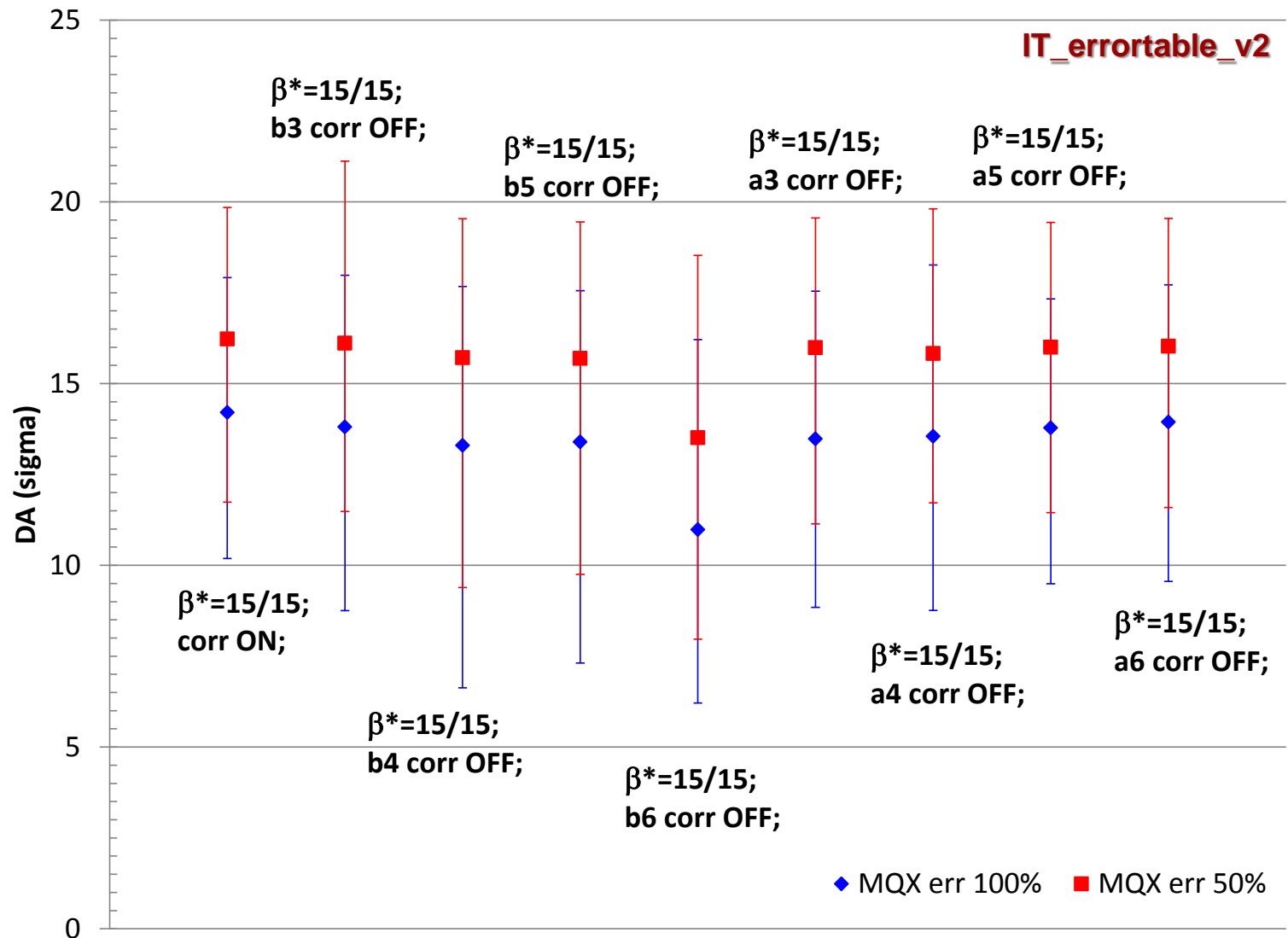
Table 3: Strength of the triplet correctors.

	Computed	Specification
	mT m at 50 mm	mT m at 50 mm
normal	3	31.2
	4	22.9
	5	16.9
	6	57.3
skew	2	500.0
	3	26.3
	4	18.8
	5	11.7
6	11.2	



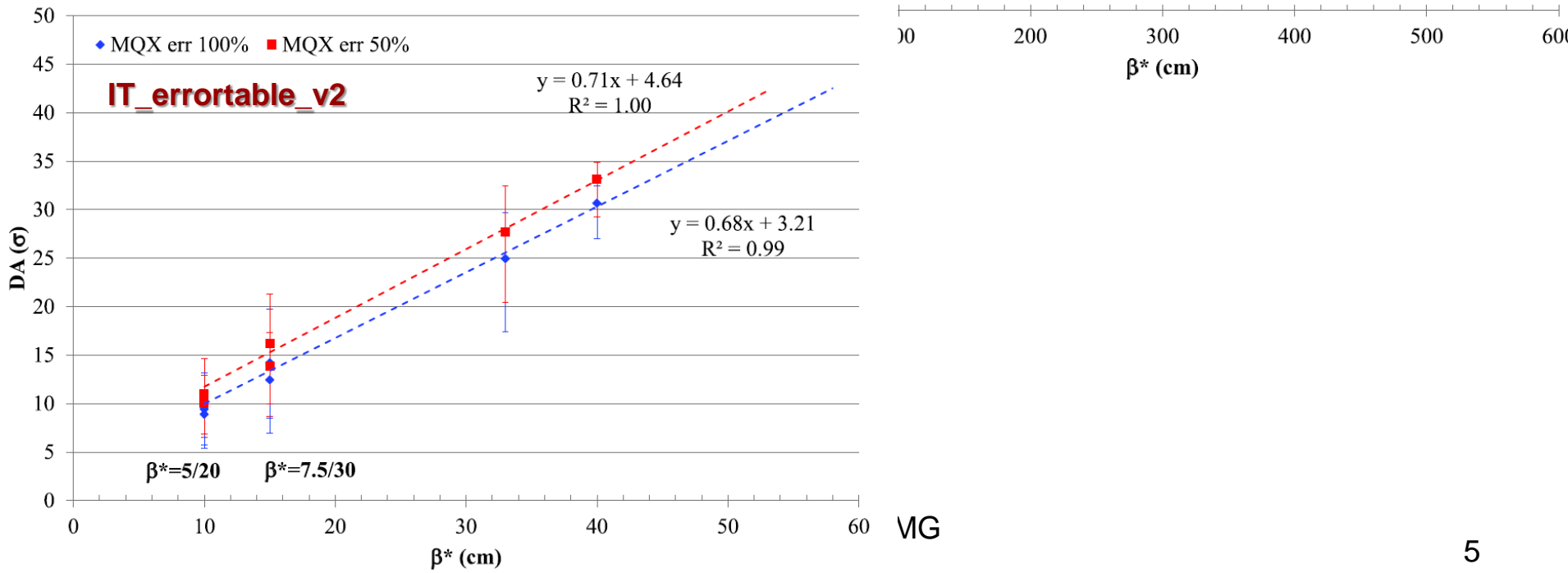
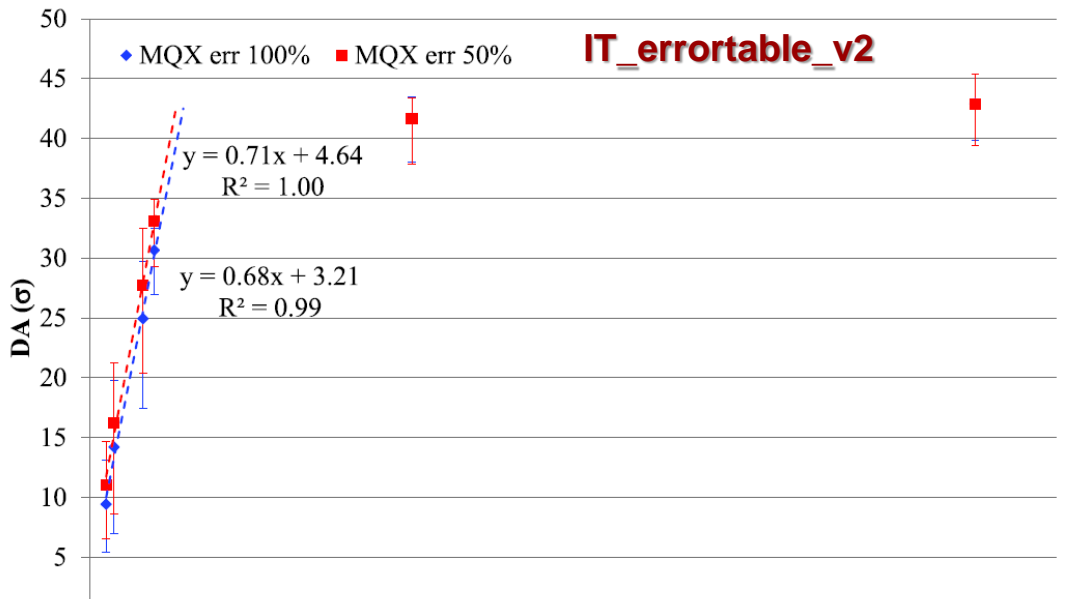
Latest activities - III

- Triplets correctors

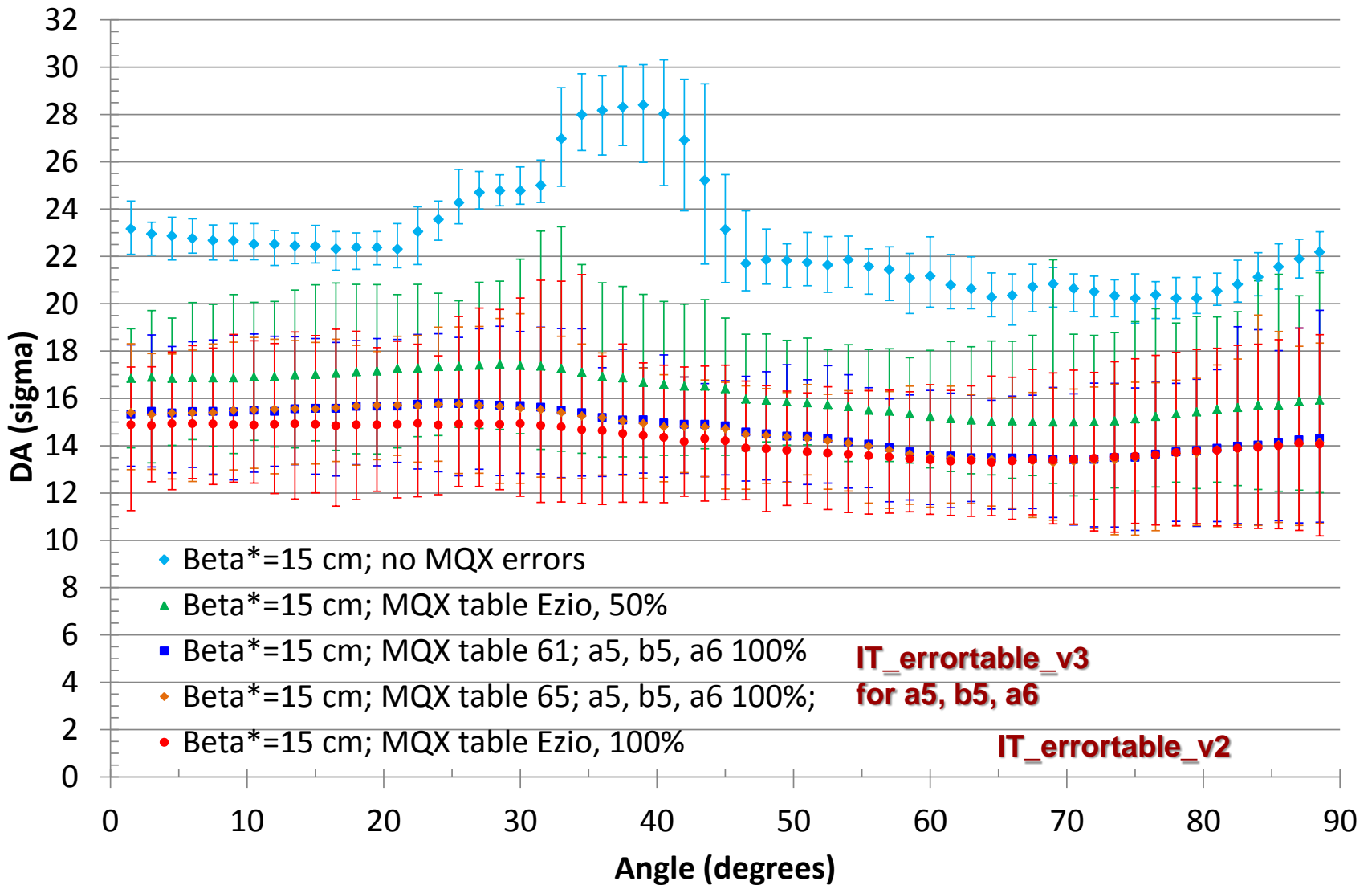


Latest activities - IV

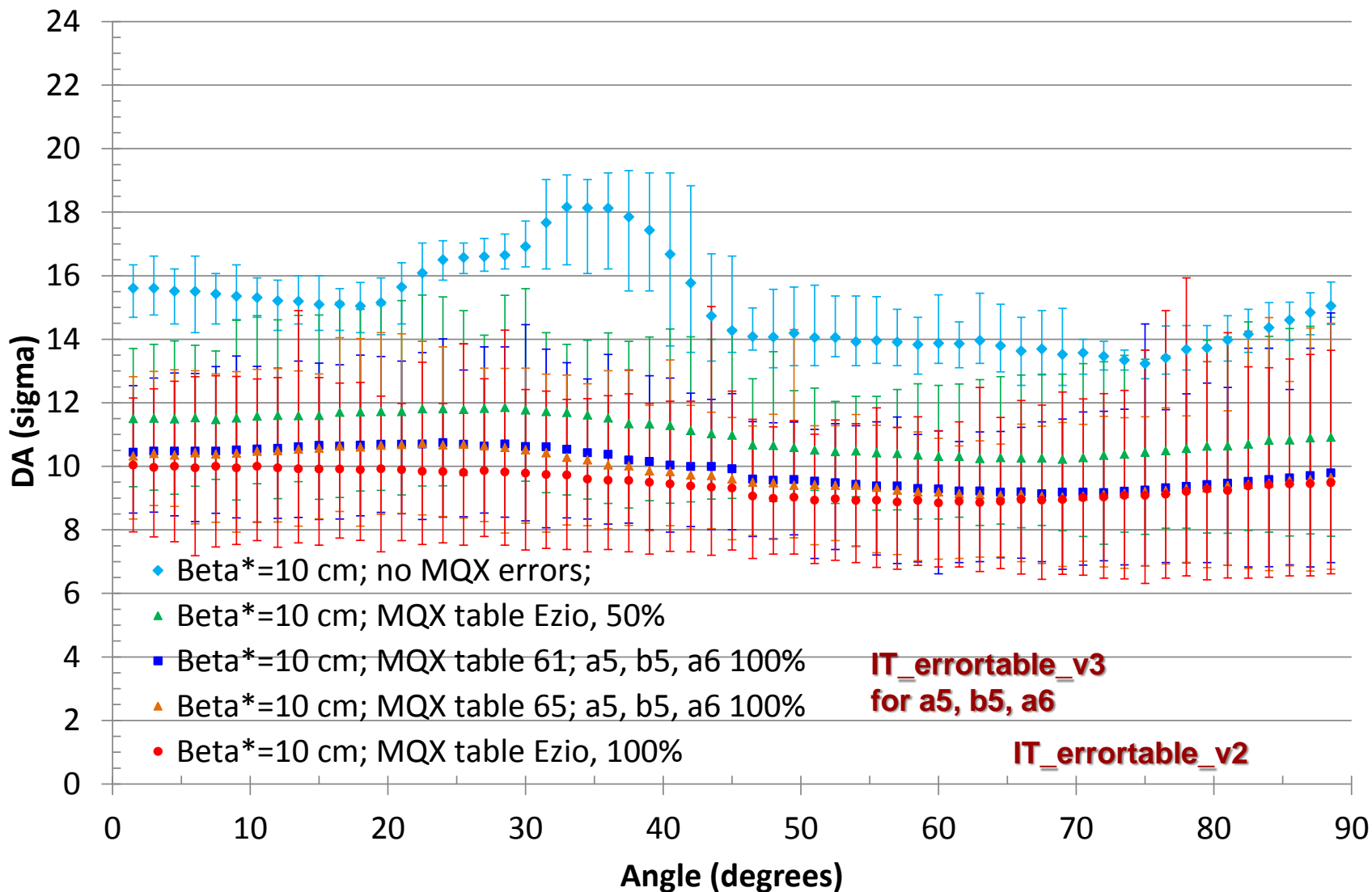
- Impact of beta* on dynamic aperture:
 - Linear below beta*=1 m
 - Constant otherwise
 - Same slope for two sets of IT FQ tables.
 - Offset of 1.5 sigma between the two sets of IT FQ tables.



Latest activities - V



Latest activities - VI



General news - I

- Decision to change leadership of Task 2.2 after completion of main goals
 - MG will succeed to Bernhard Holzer: **thanks a lot for the results achieved!**
- New Task in WP2:
 - 2.7 on “Intensity limitations from existing LHC hardware”.
 - Task leader: R. Jones (CERN).
- News from WP3:
 - Estimates of field quality for new D2 magnet should be available in few days.
 - Estimates of field quality for new Q4 should also be available within days.
 - Field quality for Q5 is already available.
 - **Comments awaited from WP3 about the proposed error table for IT.**
- **HLLHCV1.0 optics layout released and documented as IPAC13 paper!**
 - **Next step: add tools to make this version “trackable”.**

General news - II

- Some additional tools required for next steps:
 - Transverse displacement of separation dipoles to take into account correct feed down effects from field quality.
- Important remark:
 - CERN lxplus cluster moved to SLC6!
 - Lxplus is currently an alias to SLC6 machines!
 - Not everything works under SLC6: the tracking environment should be re-installed.
 - Alternative: use lxplus5 and you will be directed towards SLC5 machines.
- Specification studies for crab cavity field quality to be started in September.

References

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- R. De Maria, S. Fartoukh, M. Giovannozzi, “Specifications of the Field Quality at Injection Energy of the New Magnets for the HL-LHC Upgrade Project”, WEPEA045, in IPAC13 proceedings.
- M. Giovannozzi, R. De Maria, F. Lang, “Analysis of Possible Functional Forms of the Scaling Law for Dynamic Aperture as a Function of Time”, WEPEA050, in IPAC13 proceedings.
- R. De Maria et al., “Recent Developments and Future Plans for SixTrack”, MOPWO02, in IPAC13 proceedings.
- R. De Maria, M. Giovannozzi, E. McIntosh, “Investigation of Numerical Precision Issues of Long Term Single Particle Tracking”, MOPWO026, in IPAC13 proceedings.
- D. R. Brett, et al., “Comparison of Taylor Maps with RF Multipoles in a Thin Lens 6D Tracking Code”, WEPEA076, in IPAC13 proceedings.