Progress Report on Improvement of Ramp Infrastructure

Al Marusic

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This is a brief report on the progress of the project of improving ramp design and implementation which was started 3 years ago.
Since last retreat, there have been 2 big improvements:

- transfer functions of quad magnets were refitted and scaling factors used since 2003 were removed, and
- Controls group improved RampEditor and FeedbackEditor.

Fit coefficients of transfer functions used since 2003 for

- Q1, Q2 and Q3 quads were multiplied by 1 + 0.0028,
- arc, Q4, Q7 and TQ quads were multiplied by 1 – 0.0026.

The change of transfer functions improved agreement between model and measurements, but it did not remove all the differences: differences in tunes are still up to ~0.1 and beta beat is up to 60%. That could be due to not using proper transfer function measurements.

What remains to be done:

- Figure out what magnet measurements to use.
- Refit magnet measurements of all magnets.
- Use the same transfer functions in OptiCalc and MADX.
- Improve agreement between model and measurements.
- Controls group should continue fixing RampEditor and FeedbackEditor.
- Simplify OptiCalc configuration files.
- Simplify RHIC configuration change procedure.