Test of a high tune optics

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- **Why?**
- **What did we measure?**
- **Conclusions**

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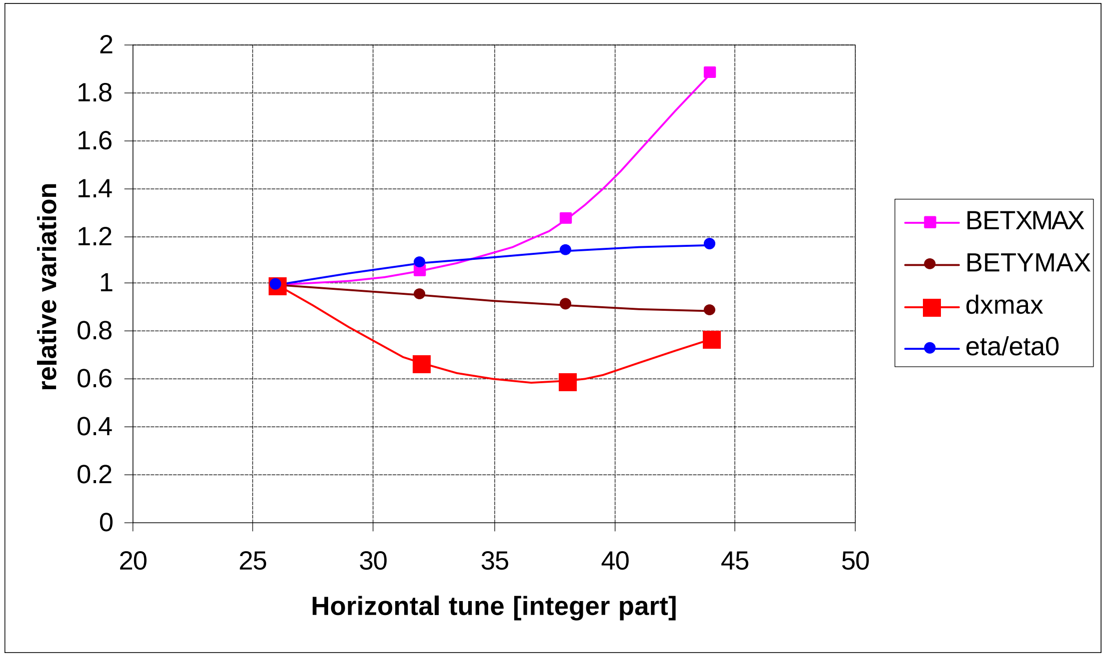
Why?



- Q_H=32.62, Q_V=26.58. Needed strength would allow to go up to > 392 GeV.

Why?

- **Advantages:**
  - lower dispersion
  - increase transition energy
  - reduce debunching time at the intermediate plateau or momentum spread required for a given debunching time
- **Disadvantage (?): longer debunching time at extraction**
- **Less sampling in the horizontal orbit**

What did we observe?

- Obtained performances comparable to standard optics.
- Bad H-orbit (7.7(H)/2(V) mm rms):
  - Injection is no more closed. Oscillation starting there and closing at the beginning of sextant 6.
  - Some other important kicks in sextant 2 and 3
  - It seems that orbit kicks are not compensated locally
- Still H-scraping at low energy. Orbit? Betatron?
- Losses observed in 2.20-2.21-2.23 at the flat-bottom.

What did we observe?

- Longitudinal observations (T. Bohl)
- Extraction: setting by P. Knaus. Preliminary solution found seems to be incompatible with leptons (electrons hitting the MST)

Conclusions

- No pathological problem with tune 32/26
- The optics 26/26 seems to be hard-coded in the SPS in some respects (injection dogleg, extraction). This should be kept in mind when thinking about new optics in the SPS (e.g. low tune optics for LHC)
- Alignment data should be reviewed on the basis of the observations performed
- A low tune optics for the start-up might be desirable to get better orbit sampling