First Conclusions from MDs & Theory

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Observations and Theory

- MDs 19-Jun Night and 24-June [EM, NM, TP, AB, …, ops]:
- In the MDs, we saw that at $Q' = 5$ the beam is sitting deeply inside the stability area.
- At the same time, we know that the instabilities happened in operations with settings $Q' \approx 2 - 3$.
- How these 2 seemingly controversial statements can both be correct, as they are?

Too Small/Negative Chromaticity

- In the operations, the chromaticity may be drifted to the negative sign, [Gianluigy].
- Nicolas and me already know from our *almost complete theory of everything* that at $Q' < 2 - 0$ the beam is significantly less stable. *A detailed talk will come soon!*
- According to the MDs, the threshold octupole current is ~4 times higher at $Q' = -5$ than at $Q' = 5$.
- Keeping in mind the uncertainty $\Delta Q' = \pm 2$, the setting $Q' = 5 - 6$ is recommended. *More details are about to come.*
- Some more uncertainty is coming from a possible lost of the LD-responsible halo due to LR-beam-beam or too close collimators. That is why a reasonable safety factor in the stability diagram analysis is required.

Many thanks for everyone of you!