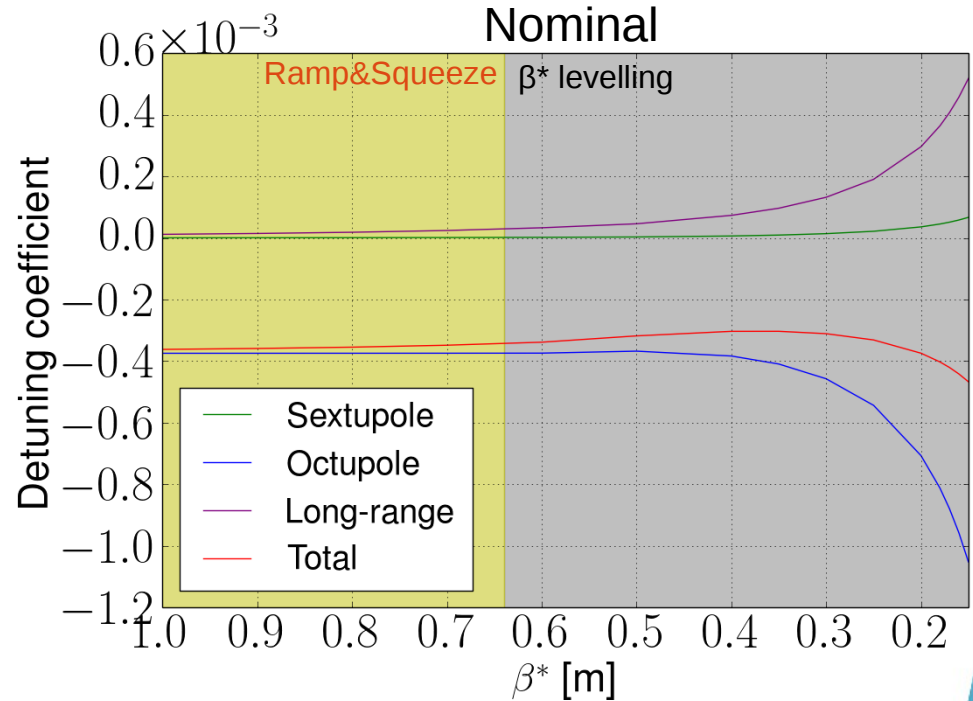


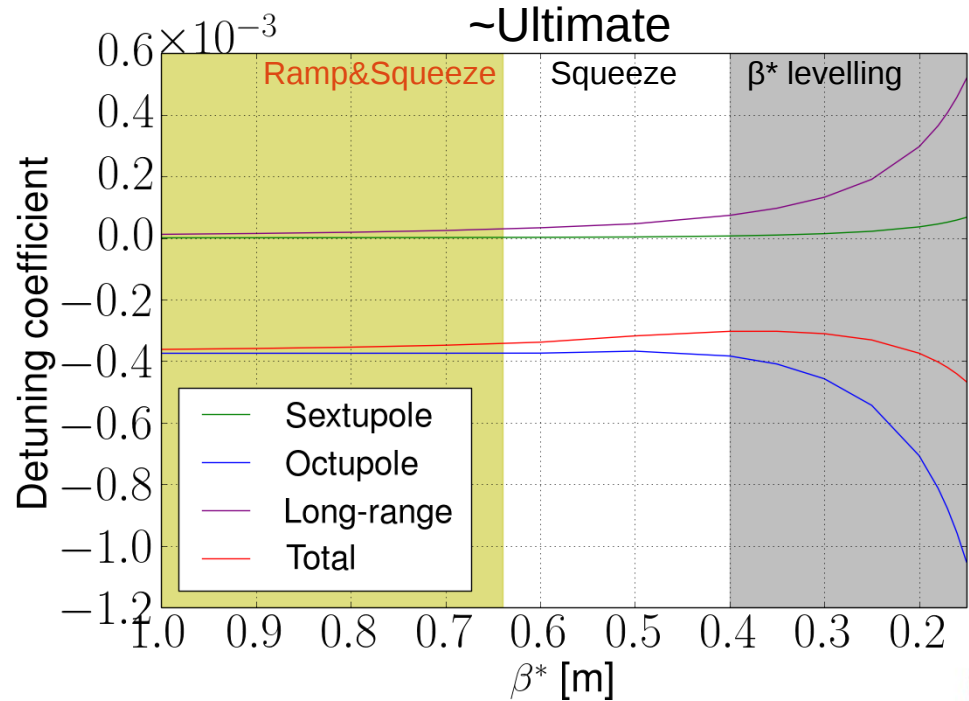
Stability margin at the end of the squeeze

- Thanks to β^* levelling, the effect of long-range on the tune spread is rather small before head-on collision is established, allowing for the negative polarity of the octupole
- W/o beta* levelling, the long-range interactions compensate the effect of the octupoles, but this effect is mostly mitigated by the telescopic part of the ATS



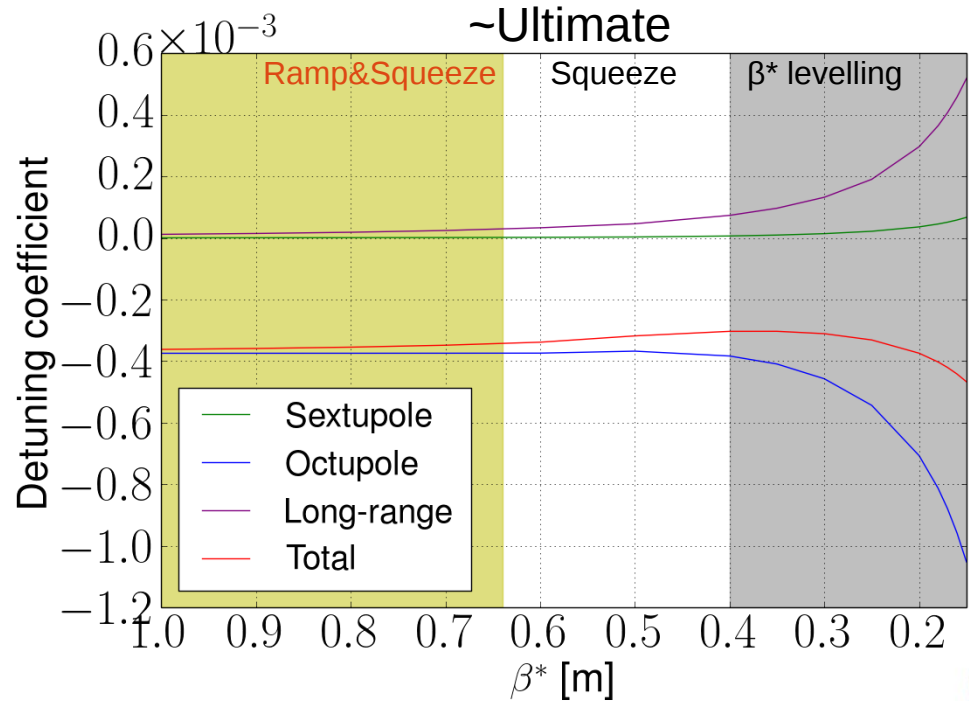
Stability margin at the end of the squeeze

- Thanks to β^* levelling, the effect of long-range on the tune spread is rather small before head-on collision is established, allowing for the negative polarity of the octupole
- W/o beta* levelling, the long-range interactions compensate the effect of the octupoles, but this effect is mostly mitigated by the telescopic part of the ATS
 - In the ultimate scenario, a 15% reduction occur at the end of the squeeze



Stability margin at the end of the squeeze

- Thanks to β^* levelling, the effect of long-range on the tune spread is rather small before head-on collision is established, allowing for the negative polarity of the octupole
- W/o beta* levelling, the long-range interactions compensate the effect of the octupoles, but this effect is mostly mitigated by the telescopic part of the ATS
 - In the ultimate scenario, a 15% reduction occur at the end of the squeeze



→ It was proposed to anticipate the telescopic part of the squeeze to avoid this compensation (T. Pieloni, et al, @ WP2 meeting 27.03.2015)

Stability margin at the end of the squeeze

- ▶ The beneficial impact of the ATS on the stability margins can be fully exploited by anticipating the telescopic part at the earliest stage, i.e. during the ramp
 - Significant improvement of the most critical point, i.e. the end of the ramp / squeeze

