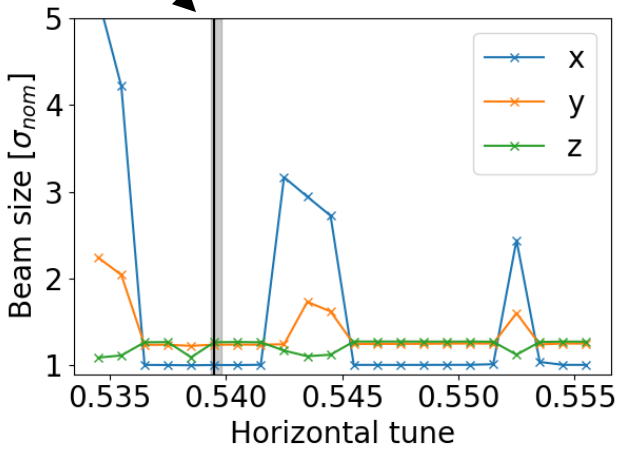
X-Z instability at Z with 120MV

X. Buffat, I. Karpov, P. Kicsiny, M. Migliorati, K. Oide, R. Soos, M. Zobov, Y. Zhang

- Strong-strong simulations (XSuite) for ¼ machine using **K. Oide's "120MV"** parameter table and including longitudinal impedance show a large enough stable tune space in the horizontal plane

Horizontal tune (218.158/4) + Expected synchrotron tune spread (based on I. Karpov's estimations)



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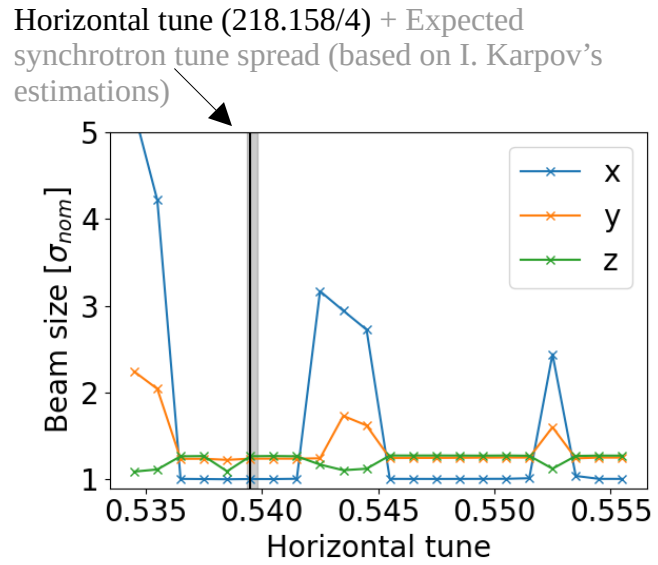
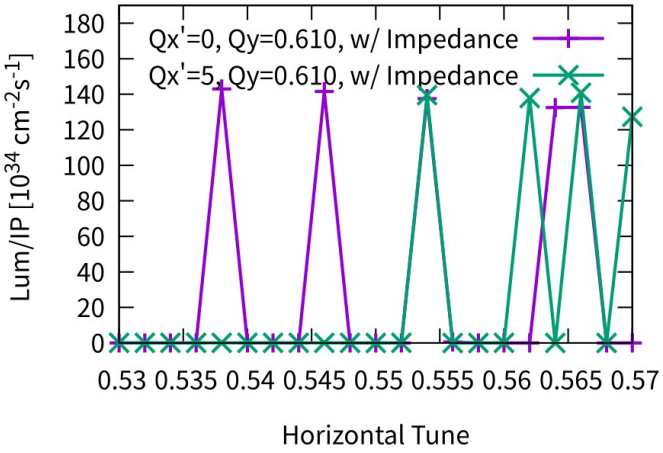
  - No improvement with high chromaticity





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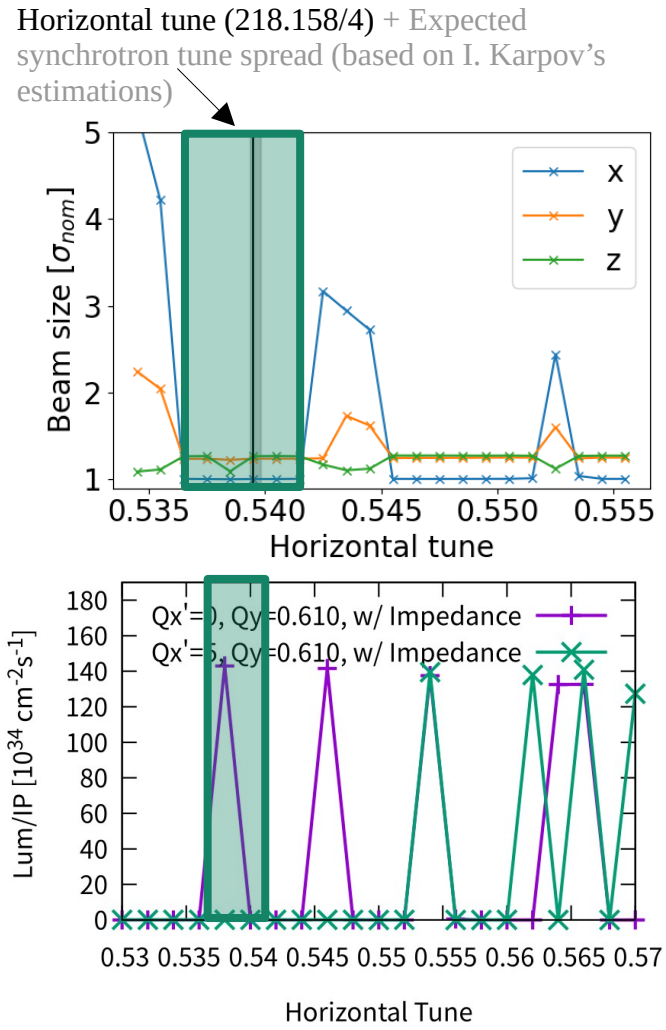

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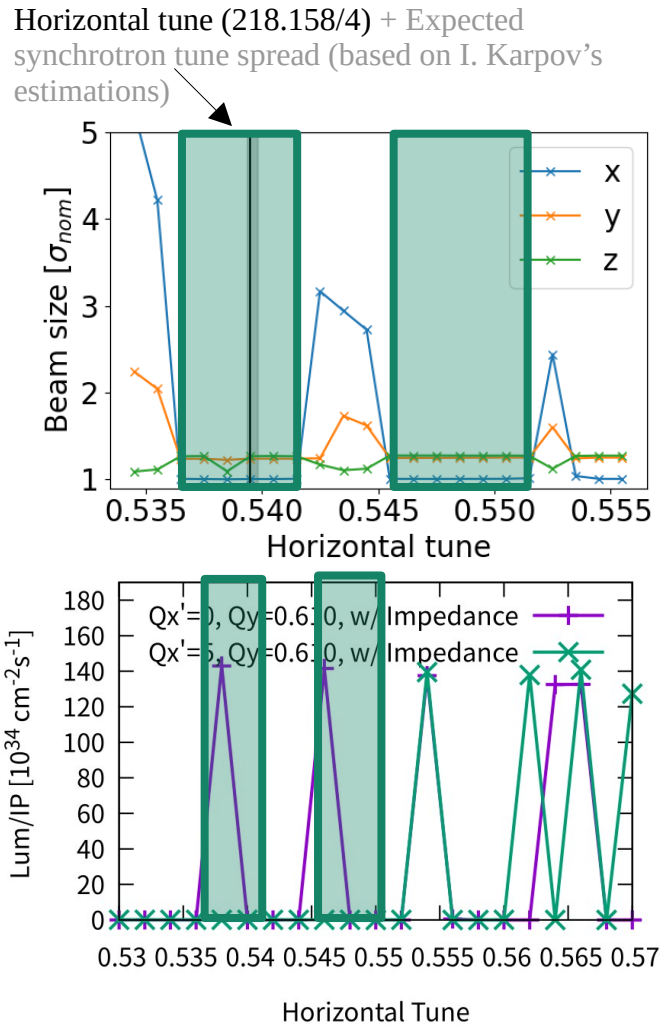

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- Similar simulations by Y. Zhang (including also the transverse impedance) show much narrower stable tune space
  - No improvement with high chromaticity
- First tests with XSuite including transverse impedance as well seems to indicate that the difference is due to vertical instabilities (similar to those described in Y. Zhang @ IPAC23). If confirmed, the issue might not be linked to the higher voltage.