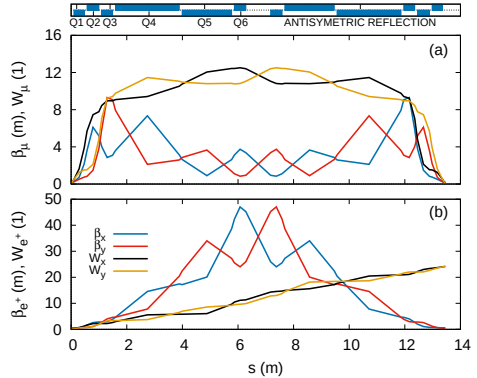
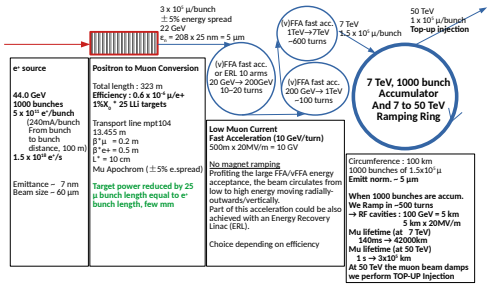
Muon Beam Studies

- **Transport line for e^+ at 44 GeV, $\mu^+\mu^-$ at 22 GeV**
  Keeps the transverse normalized emittance small ≈ 5 μm (20 nm x 22 GeV/m_μ)
  Increases the production efficiency by a factor 10.
  Distributes de power deposition over 20 to 40 targets.
  https://journals.aps.org/prab/abstract/10.1103/PhysRevAccelBeams.23.091601



- **Proposal of a scheme to accelerate and accumulate muons.**
  (For discussion)
  Proffiting from damping at 50 TeV, I propose a scheme to increase the
  muon population from 10^5 ~ 10^6 to 10^8 ~ 10^9, and 5 μm normalized emittance
  https://arxiv.org/abs/2009.02536



- **Design of an accumulator for LEMMA based on FFA cells**
  (Under study, there is a draft for submission to the arxiv)
  However, a design was presented in a LEMMA general meeting
  https://agenda.infn.it/event/22058/contributions/111642/attachments/71020/90572/muacc_2020apr09.pdf
  A 230 m ring with +/-5% energy acceptance and ß* = 20 cm at the target.
  It accumulates a bit more than 10^6 μ, and normalized emittance circa 10 μm.
  Limited by the target requirements of low beta: energy acceptance is reduced, dynamic aperture is reduced and multiple scattering with the target increases the beam emittance