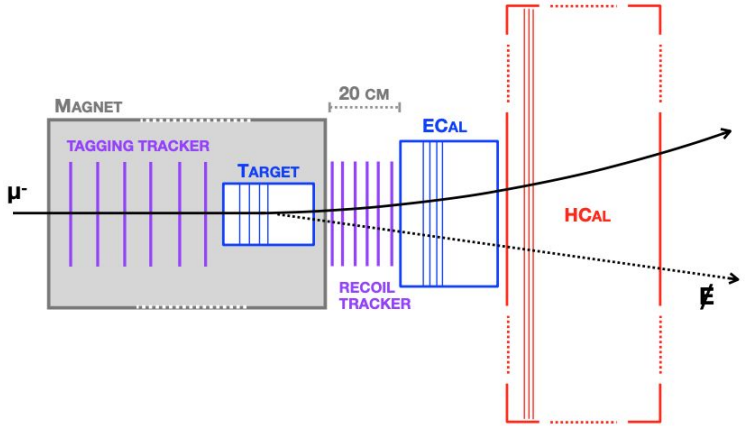
Muon beam @ KL-facility

- Exploiting muon beams would enable the search for a possible light gauge boson, which would couple predominantly to muons and/or taus
  - Such a light boson could be either a scalar or a vector mediator
  - Its existence would be a viable explanation of g-2 anomaly
- Fixed-target, missing-momentum search strategy to probe invisibly decaying particles (similar to proposed M3 experiment @ Fermilab)
- Muon Beam **requirements**:
  - E mbeam = O(1GeV)
  - MOT ~ 10^{10} (1 year)
- Muon flux evaluation produced by the interaction of e- beam with HALL-A beam dump
  - Muon rate ~ 3E8 muons/s for a e- current ~50uA
  - we expect in KL-facility at least 1 order of magnitude less then HALLA
- Explorative studies to perform this kind of measurement parasitically to the CPS facility operation
  - investigate the characteristics of the secondary muon beam produced in KL facility
  - Space available for the measurement set-up
  - Backgrounds
- Status: brainstorming with RADCON



secondary muon beam produced by the interaction between **HALLA-DB** and e-