

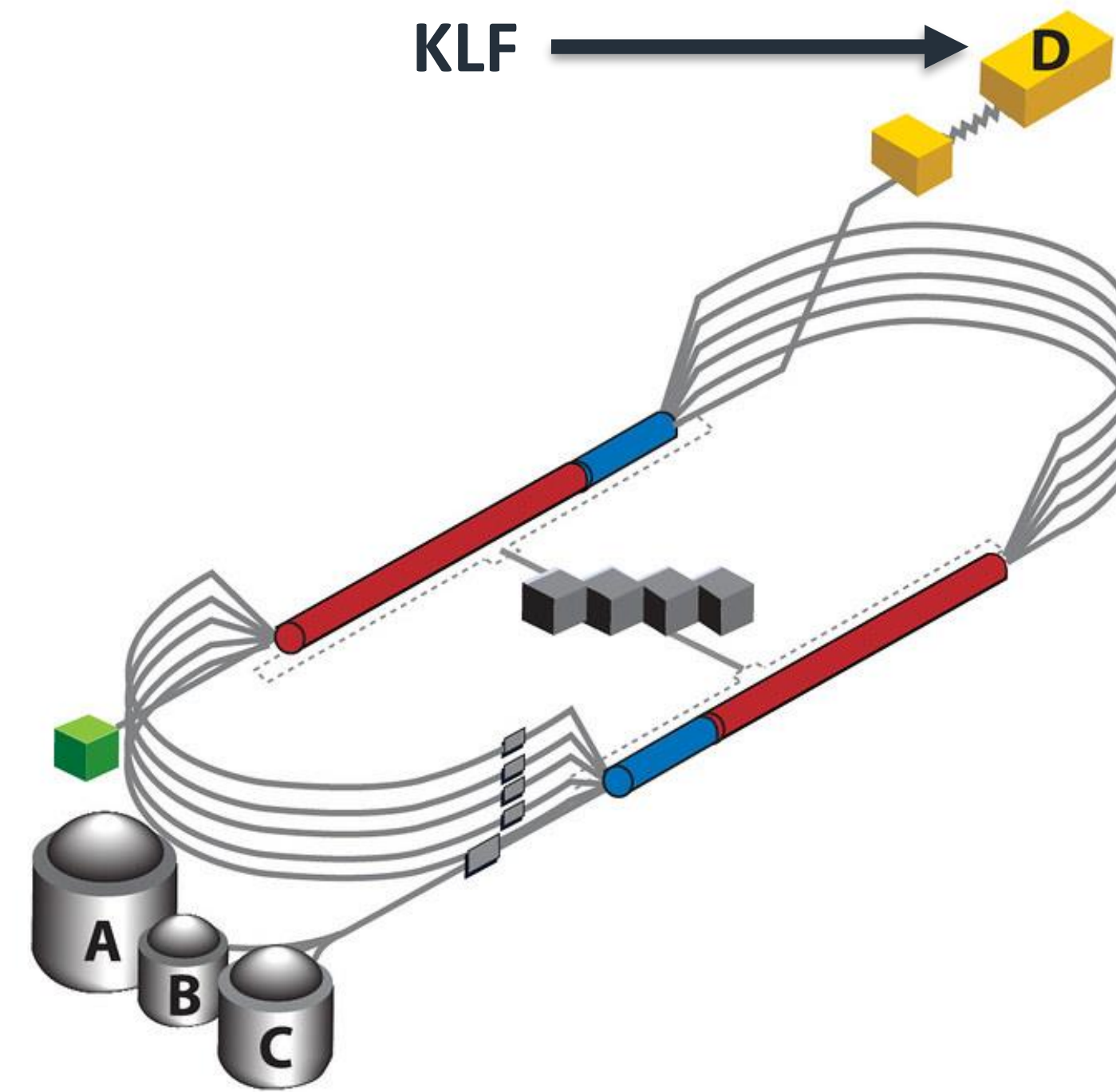


K-long Facility in Hall D

**Moskov Amaryan
Old Dominion University**

ERR Meeting, JLab, August 2, 2023

JLAB

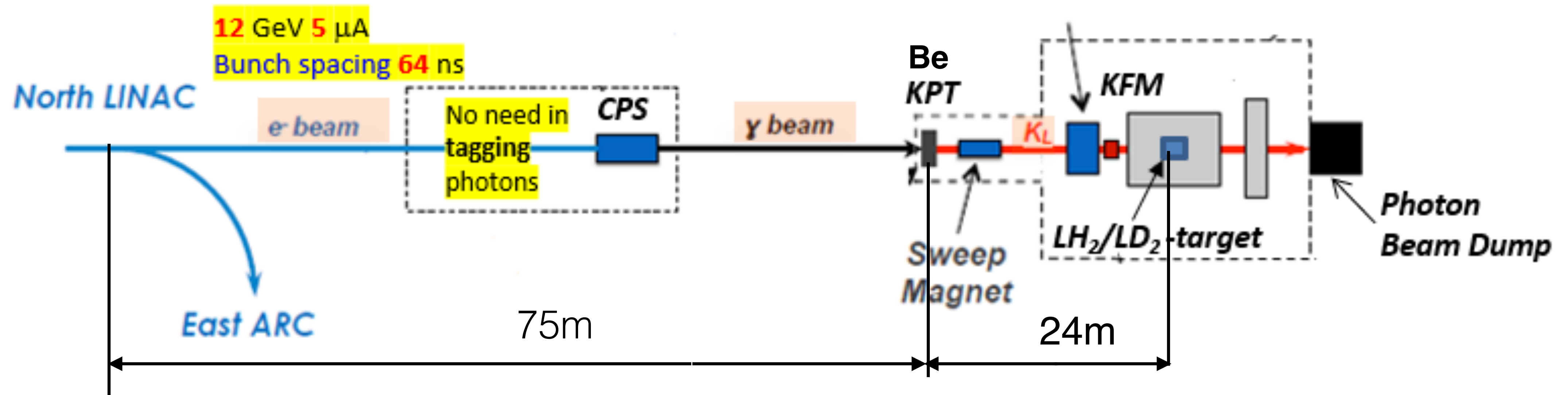


Electron Beam:

- 12 GeV
- $5\mu A$
- 64 ns bunch spacing

Strange Hadron Spectroscopy with Secondary K_L Beam in Hall D

Hall D beam line and GlueX setup

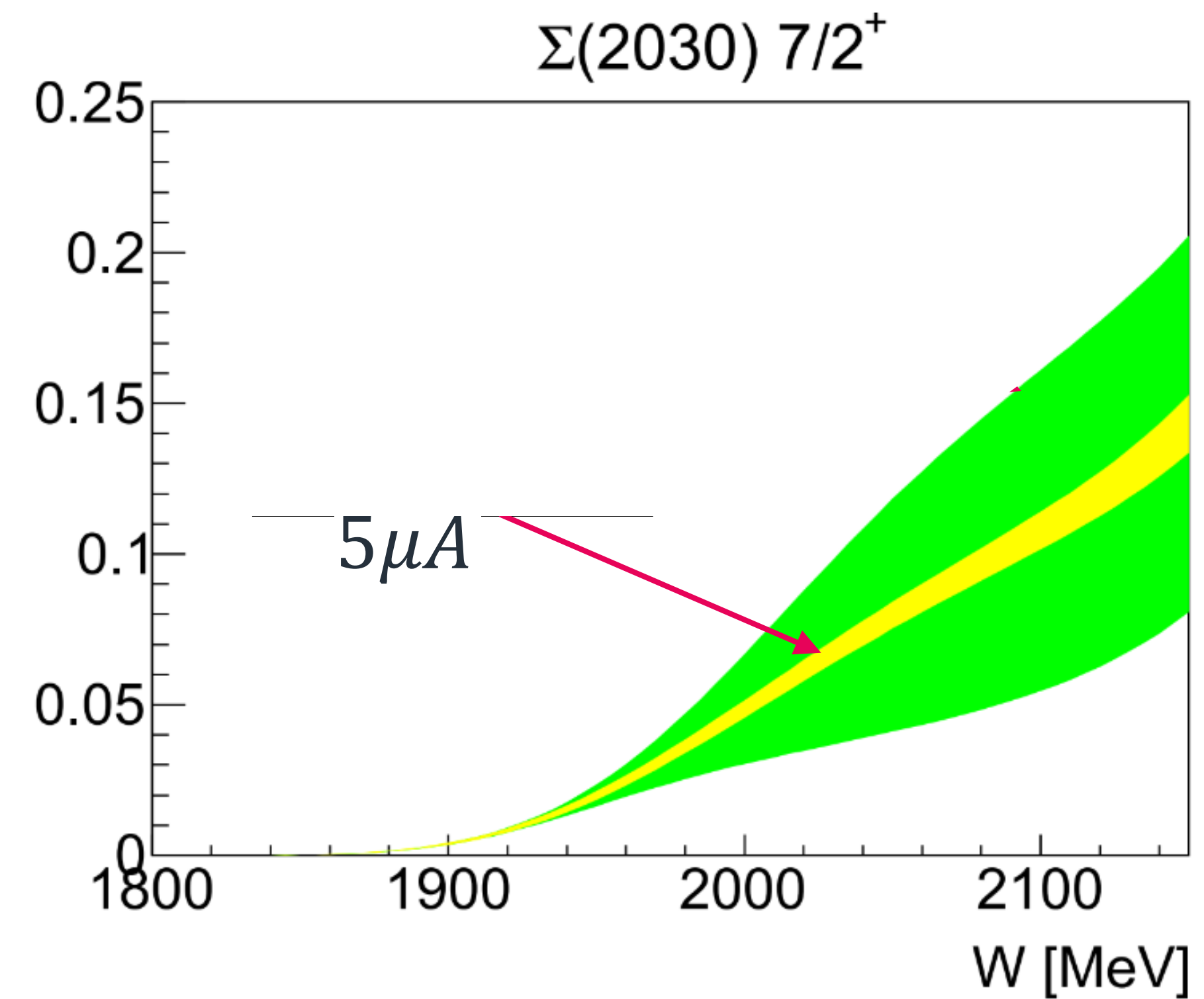
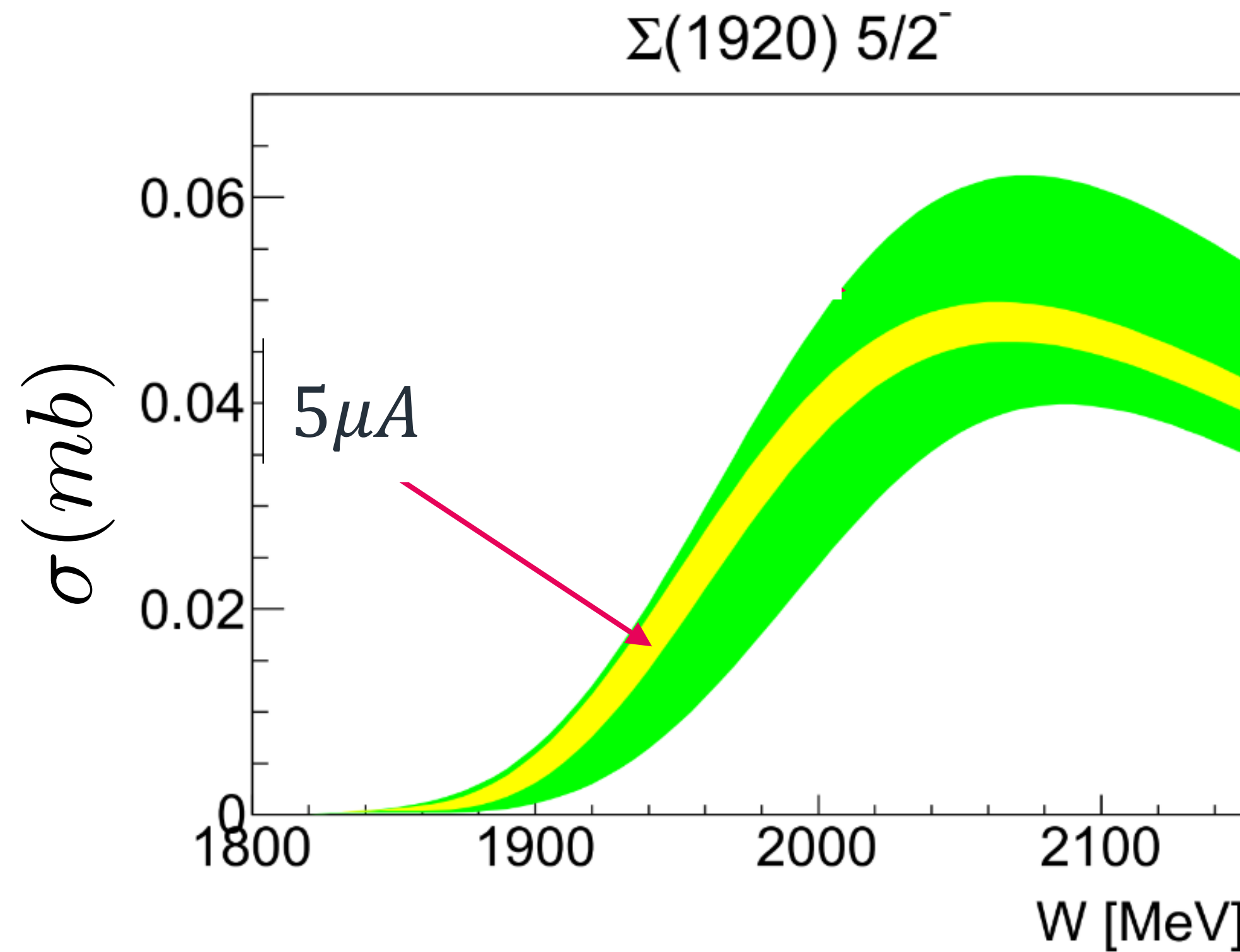
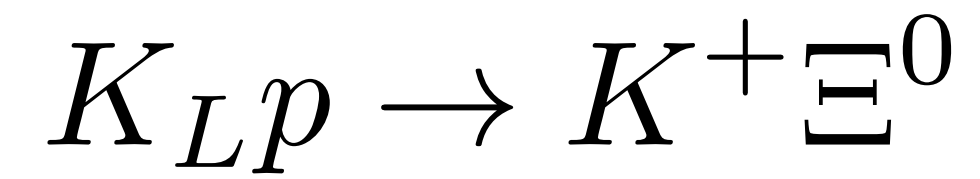


<https://arxiv.org/pdf/2008.08215.pdf>

- The K-long facility at Jlab will be unique as it provides all momenta of incoming beam at once allowing to measure all hyperons in a formation s-channel reactions for the first time both on a proton and on a neutron targets
- Beam Current of $5\mu A$ is needed to reconstruct hyperon states with 10 MeV accuracy of their positions and widths
- The excellent GlueX setup is needed to detect multi particle final states to identify reactions mechanisms

Bonn-Gatchina PWA

Total Cross Section



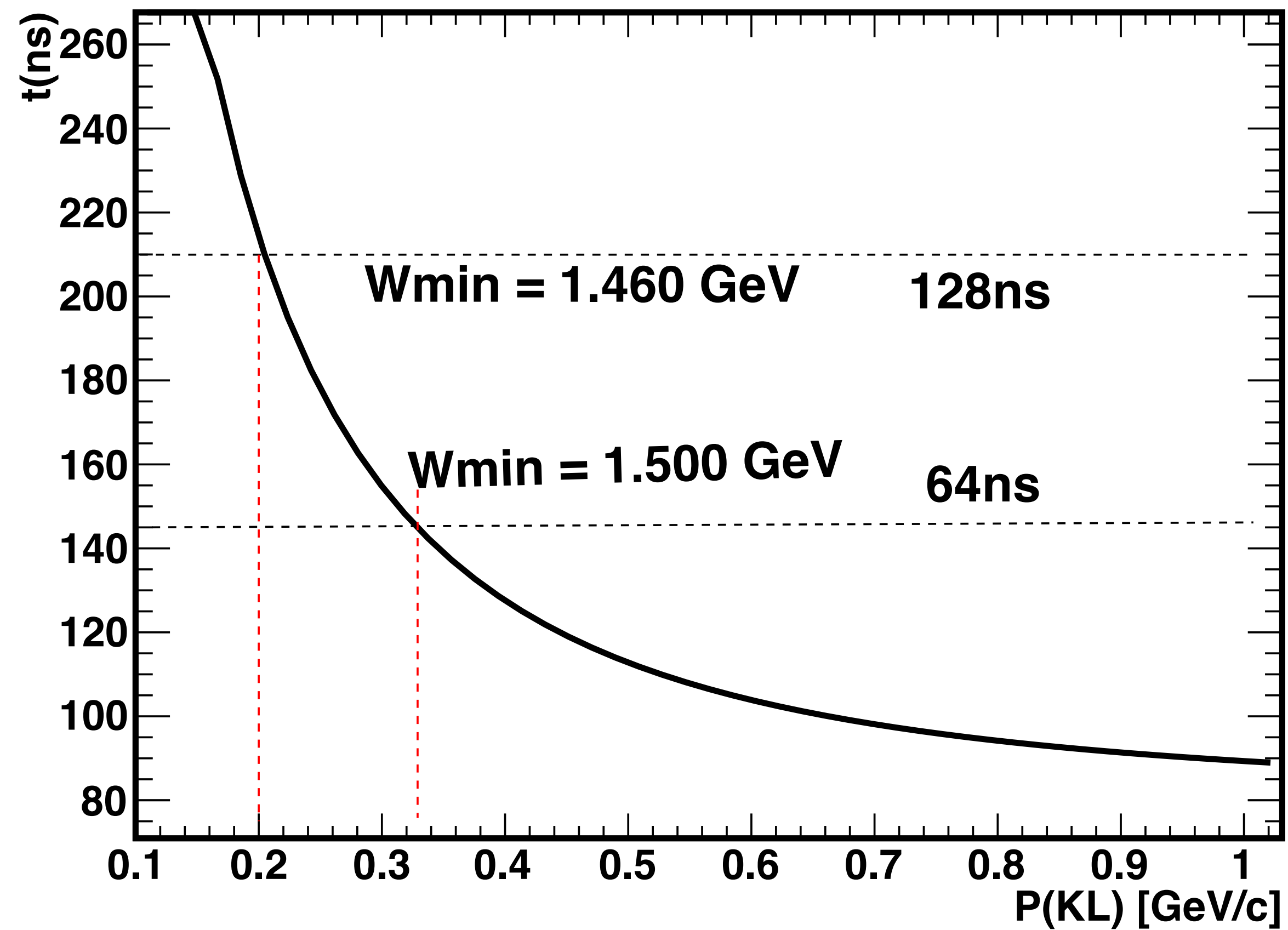
Need 100 days of running to get precise solution

Electron Beam Parameters

$$E_e = 12 \text{ GeV} \quad I = 5 \mu\text{A}$$

$$\text{Bunch spacing} \quad 64 \text{ ns}$$

128 ns is beneficial



Summary

- All beam parameters of the proposal are approved
- CPS conceptual design is developed and ready for construction (see talk by H.Egiyan)
- KPT conceptual design is developed and ready for construction (see talk by I. Strakovsky)
- FM component is developed is ready for construction (see talk by M. Bashkanov)
- Engineering status of KLF in Hall D (talk by T. Whitlatch)
- Electron beam delivery has been discussed and no showstoppers were identified (details are in talks of G. Krafft, R. Suleyman and E. Nissen)