

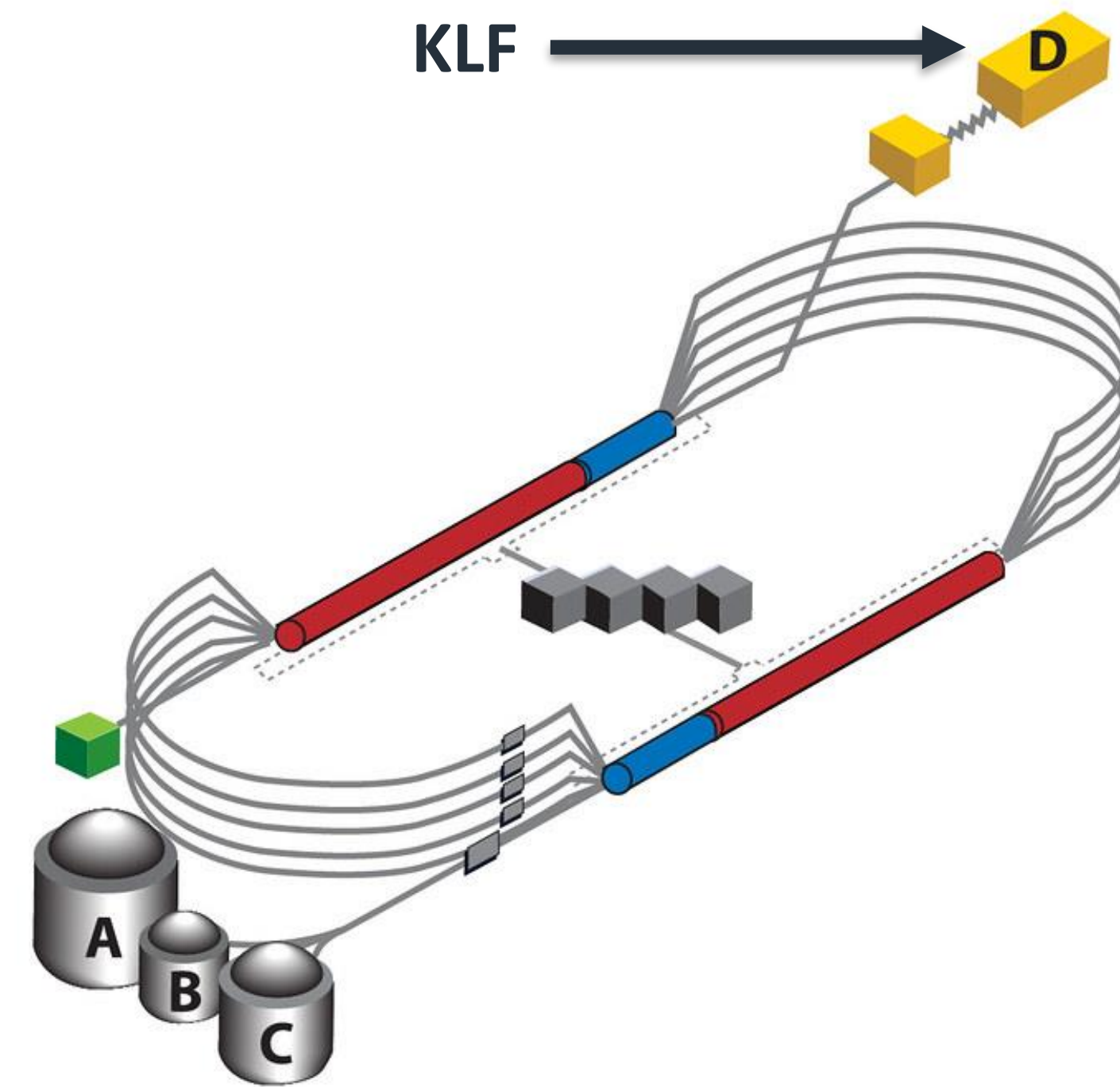


K-long Facility in Hall D

**Moskov Amaryan
Old Dominion University**

ERR Meeting, JLab, August 2, 2023

JLAB

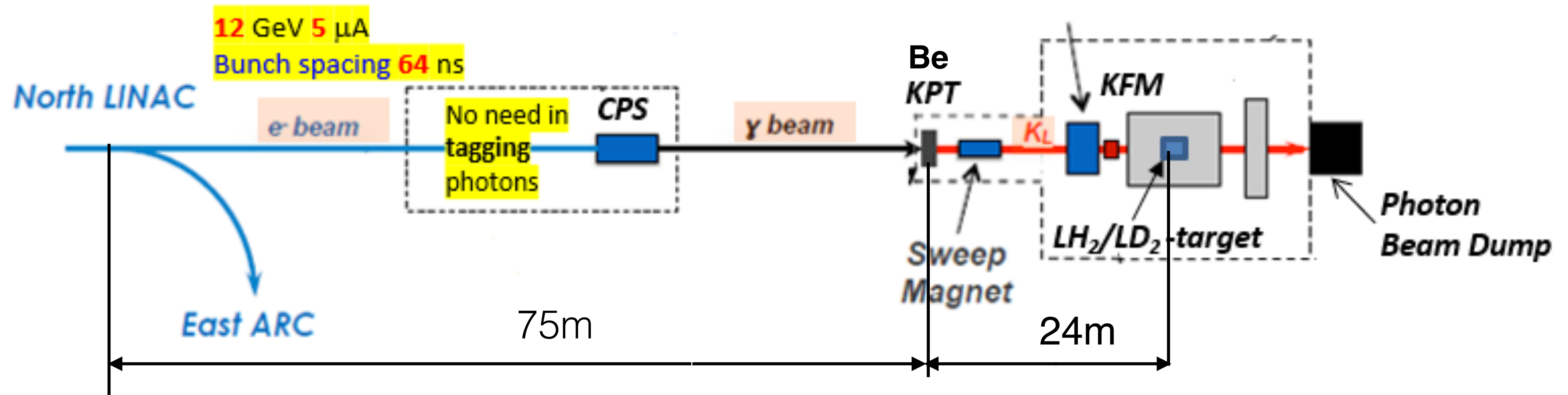


Electron Beam:

- 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>

$5\mu A$ Electron Beam Current is needed for 100 days

One example from the proposal

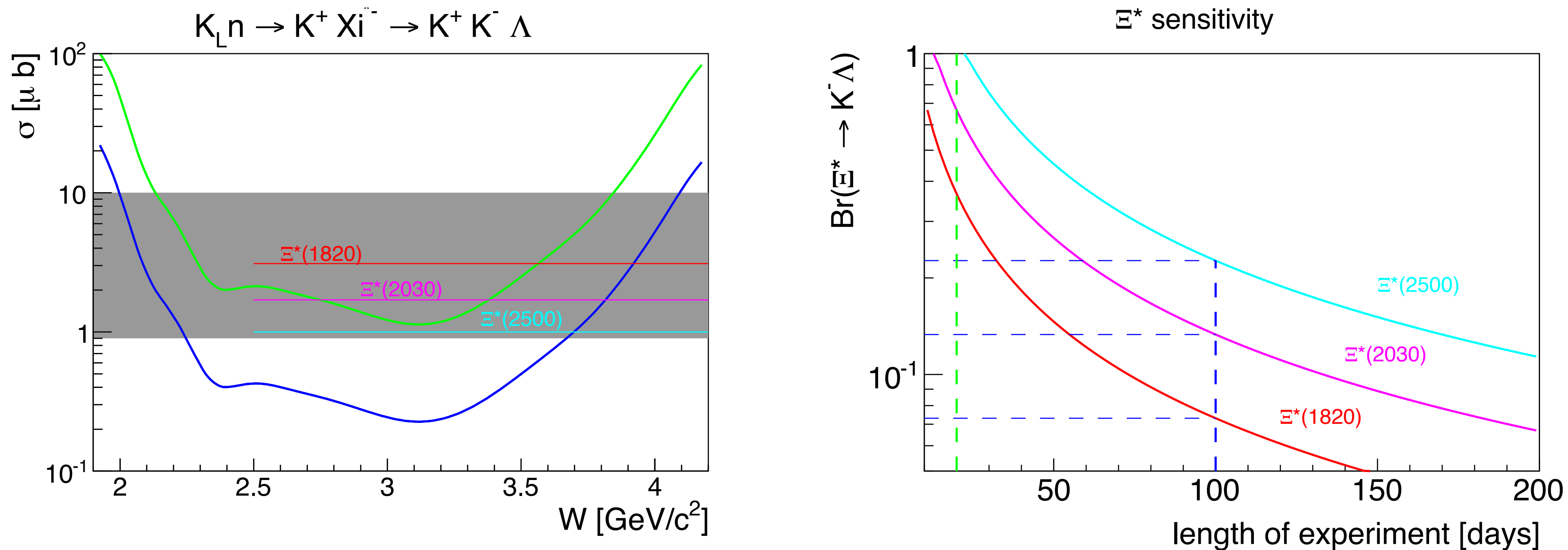


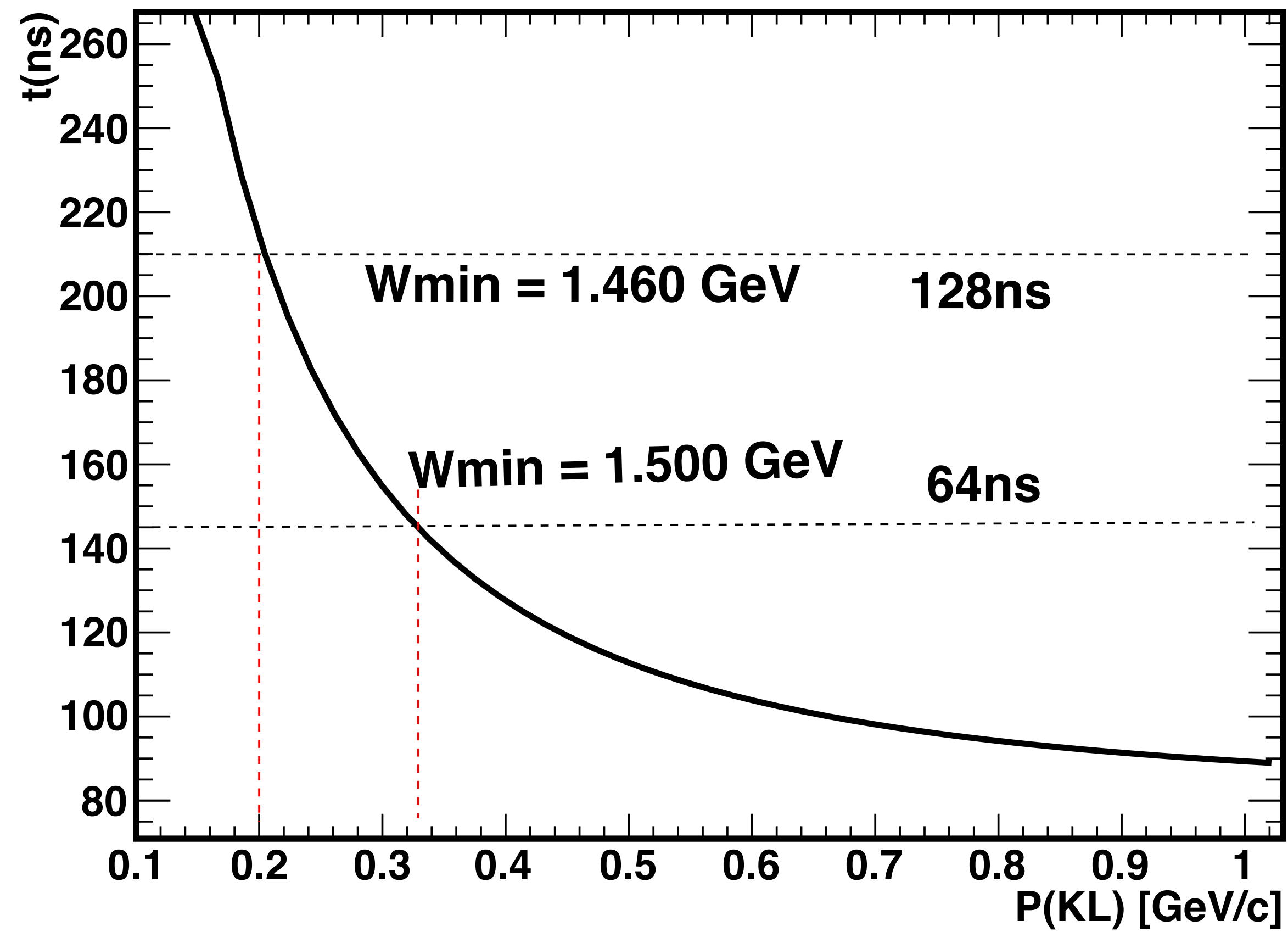
Figure 6: Left: Ξ^* discovery potential achievable at KLF during the 100 (blue) and 20 (green) day experiment, under assumption of 10 % statistical accuracy and $Br(\Xi^* \rightarrow \bar{K}\Lambda) = 1$. The gray band corresponds to typical Ξ^* cross sections and horizontal lines are few examples of BNL cross sections from Ref. [41]. Right: Estimation of lowest measurable $\Xi^* \rightarrow \bar{K}\Lambda$ branching fraction at KLF as a function of experiment duration at $W \sim 3.1 \pm 0.025$ GeV. Two benchmark cases of 100 (20) days are highlighted by dashed blue (green) curves.

Electron Beam Parameters

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

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

128 ns is beneficiary



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)