

# Piezo motor-based hardware triggered nano focus caustic acquisition

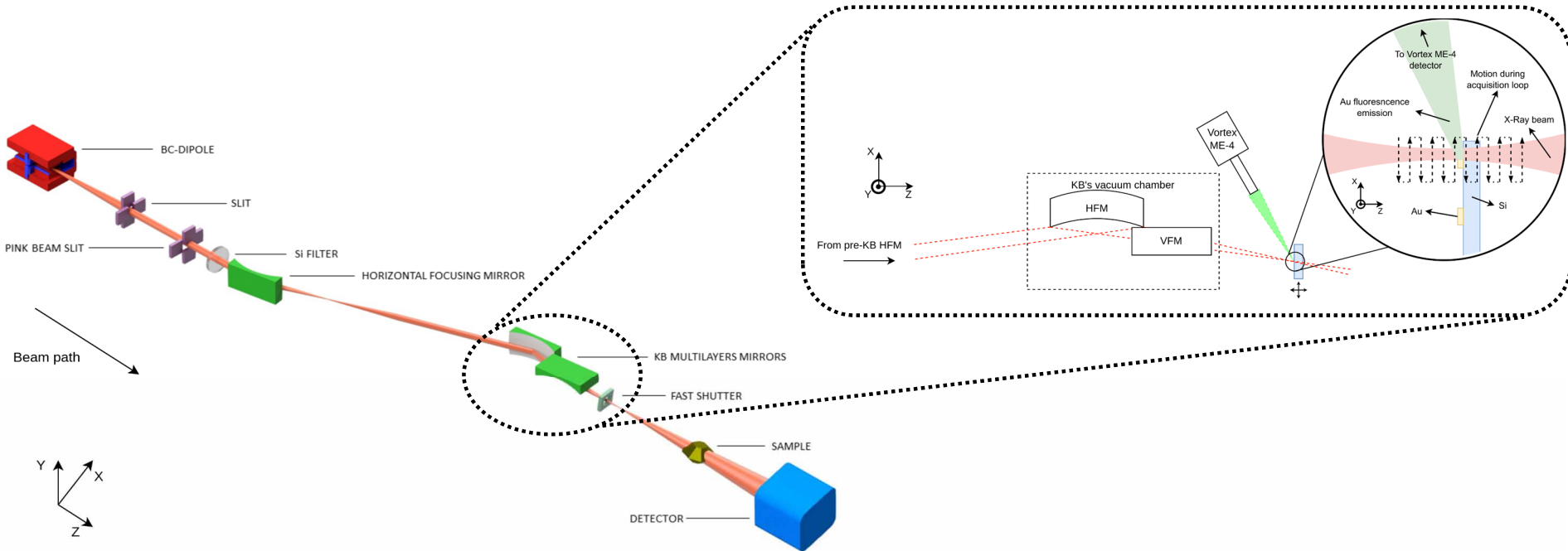
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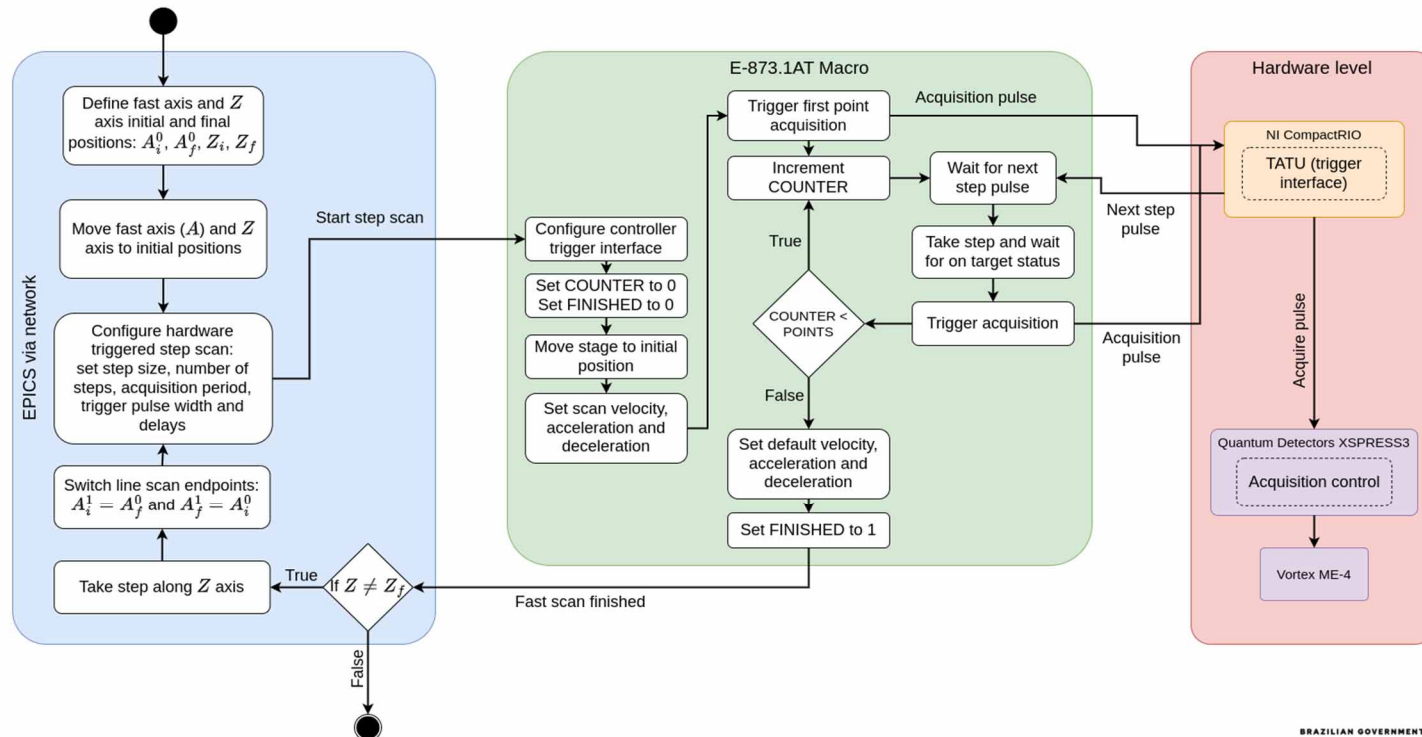


# Mogno beamline and the KB alignment problem

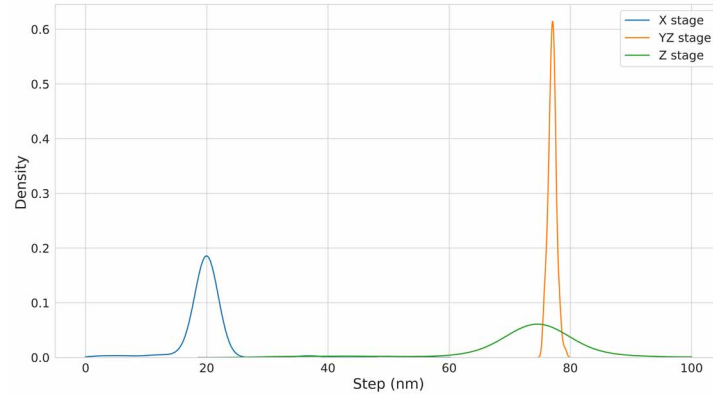
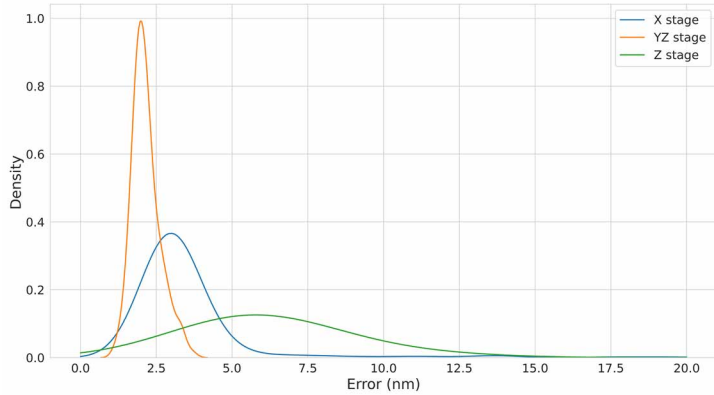


# Assembly and control system

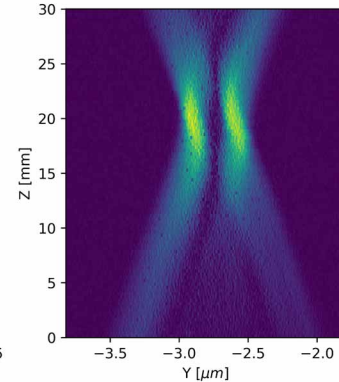
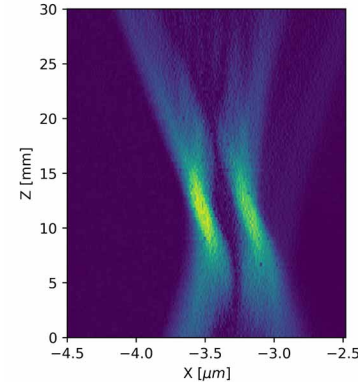
- 3 DOF system build with 3 linear piezo stages
- Fluorescence signal is acquired by a Vortex ME-4 SDD
- Each planar scan is composed by a set of 1D hardware-triggered step-scans!



# Results



- Both, position error during acquisition points and step amplitude distributions were measured
  - Mean error in plateaus:  $4 \pm 3$  nm (X),  $2 \pm 1$  nm (YZ),  $8 \pm 7$  nm (Z)
  - Step sizes:  $20 \pm 5$  nm (X),  $77 \pm 1$  nm (YZ) and  $75 \pm 13$  (Z)
- YZ stage is the most stable, while Z is the most unstable!
- Caustics were obtained for XZ and YZ planes, however the total scan dead time is still high (up to 35%!)
  - Preliminary focus size of  $416 \times 480$  nm<sup>2</sup>



# THANK YOU!

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