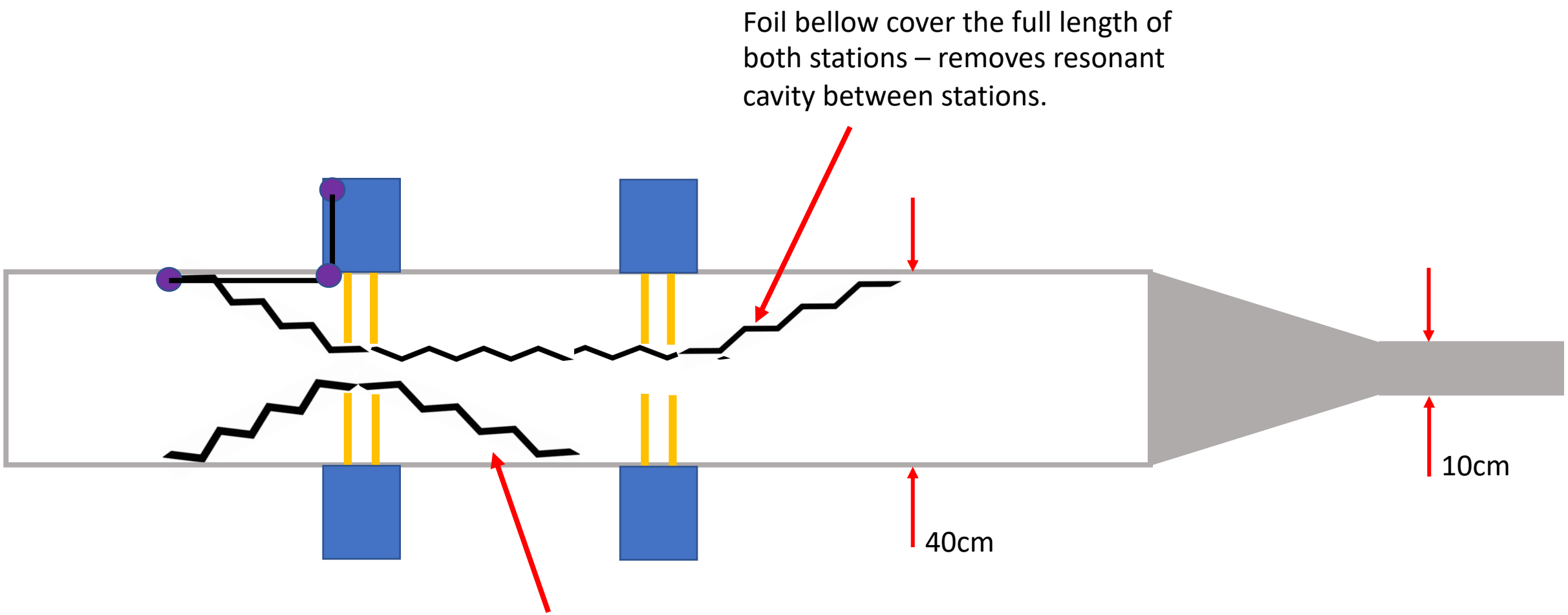
Options to reduce impedance impact of Roman Pots

Alex Jentsch and Elke Aschenauer

11/4/2022

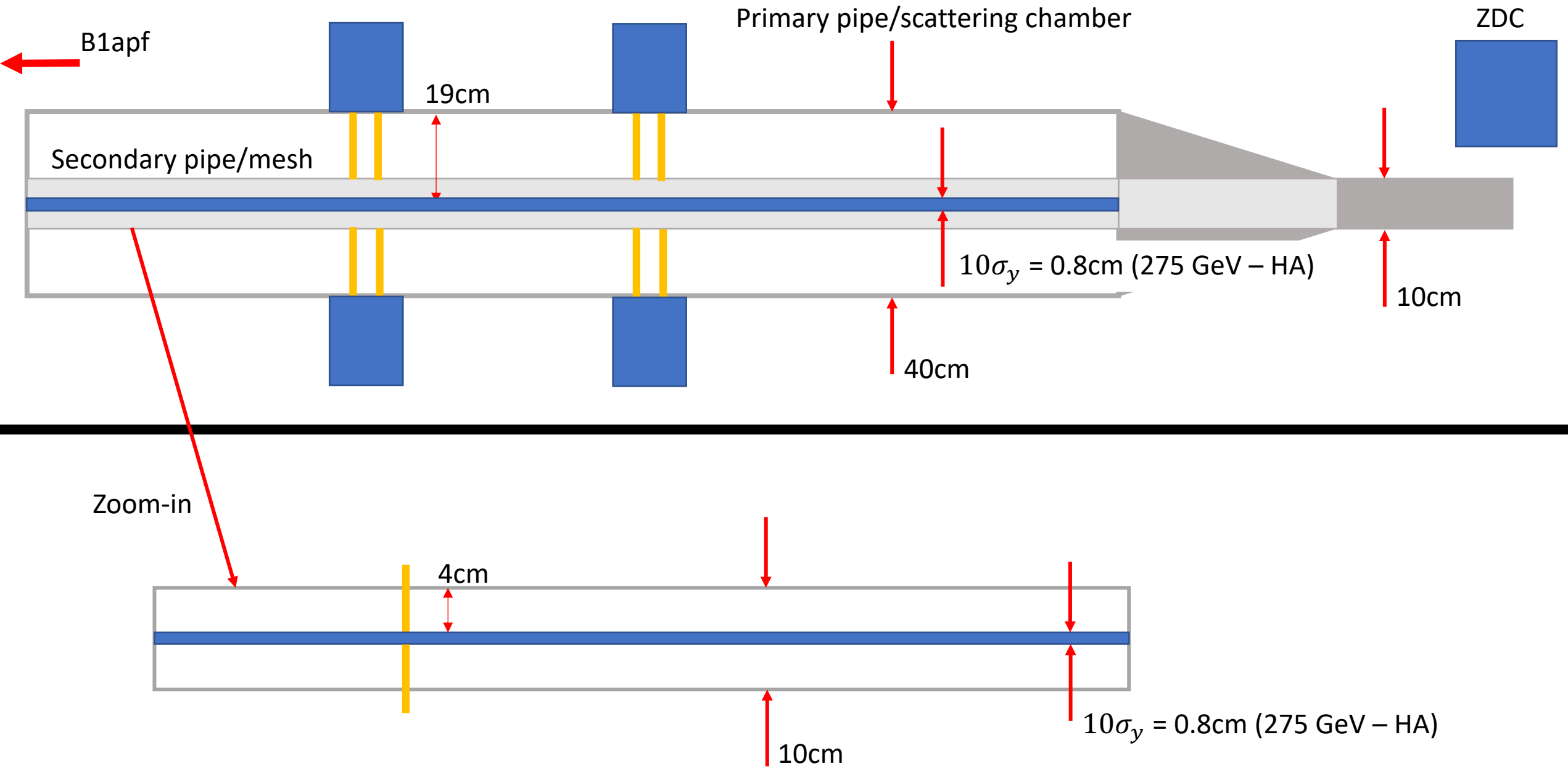
First Option: Foil “bellows”

*not to scale!



Second Option: Secondary (perforated/mesh) beam pipe

*not to scale!



Some discussion questions

- What drives the impedance, in general?
  - Just sharp transitions?
  - Is it the gradient between edges? Meaning, would a smaller overall beampipe + roman pots help because the detector is smaller, or the distance between the beam pipe wall and detector edge is smaller?
- How much does shielding play a role in limiting the negative impact of the sharp transitions?
  - E.g. gold foils around detector planes.
- Would constructing a “foil pot” around the sensors to soften the transitions help at all?