

# Possible Positions of a Cryopump for PANDA

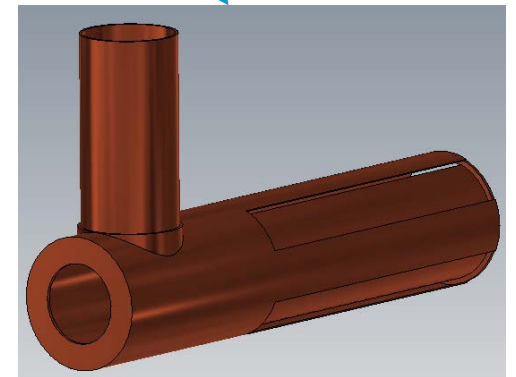
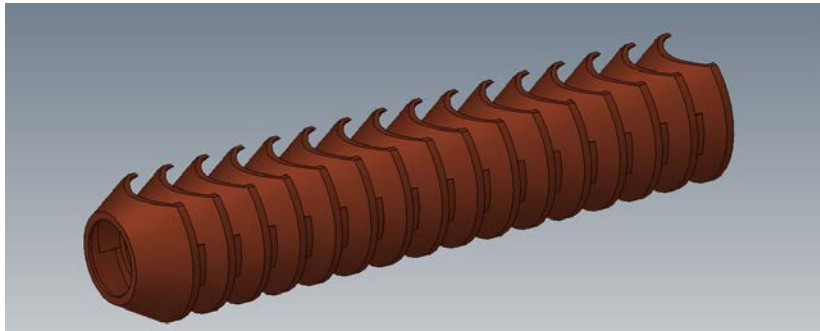
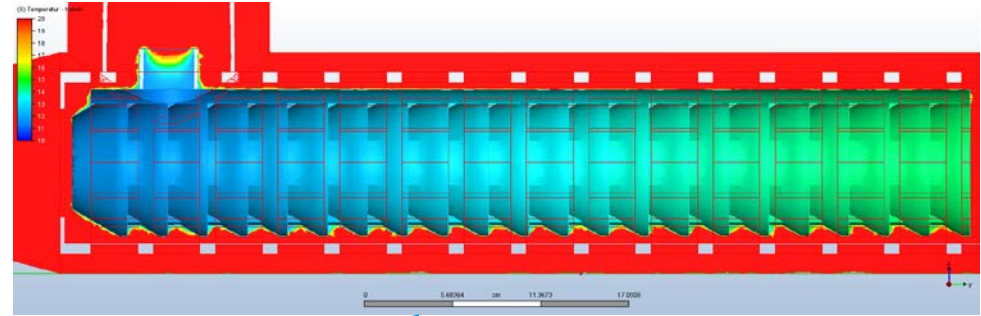
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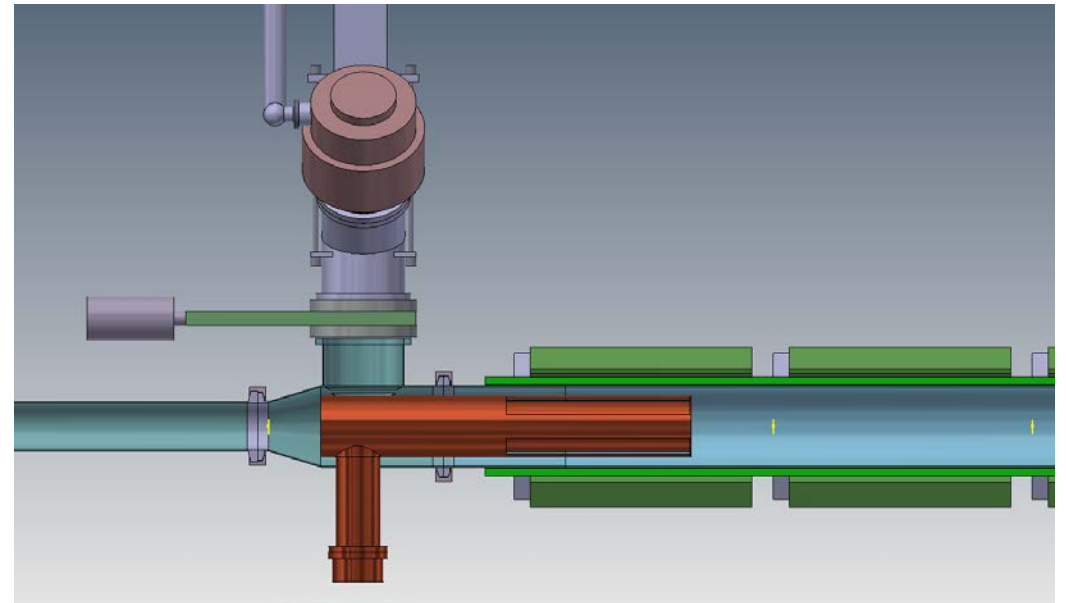
## A short review

- It is possible to build a cryopump which achieves the desired temperatures while maintaining regeneration intervals of several months.
- An optimal geometry was found for the cryopump as well as the surrounding heat shield:



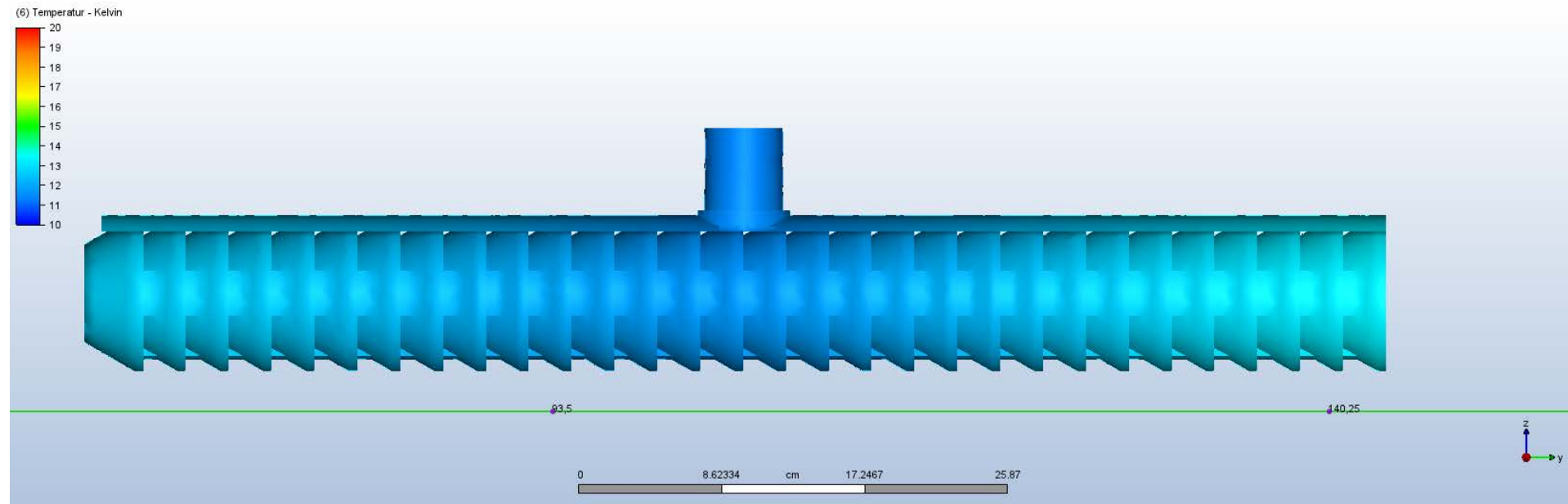
## Next steps: Fine tuning the positioning of the pump

- Integration of the cryopump in the current beam line:
- Challenging for several reasons:
  - Difficult to engineer.
  - Cryopump might be in danger of bending.
  - Waste of cooling power.
  - Unnecessary restriction of regeneration interval.



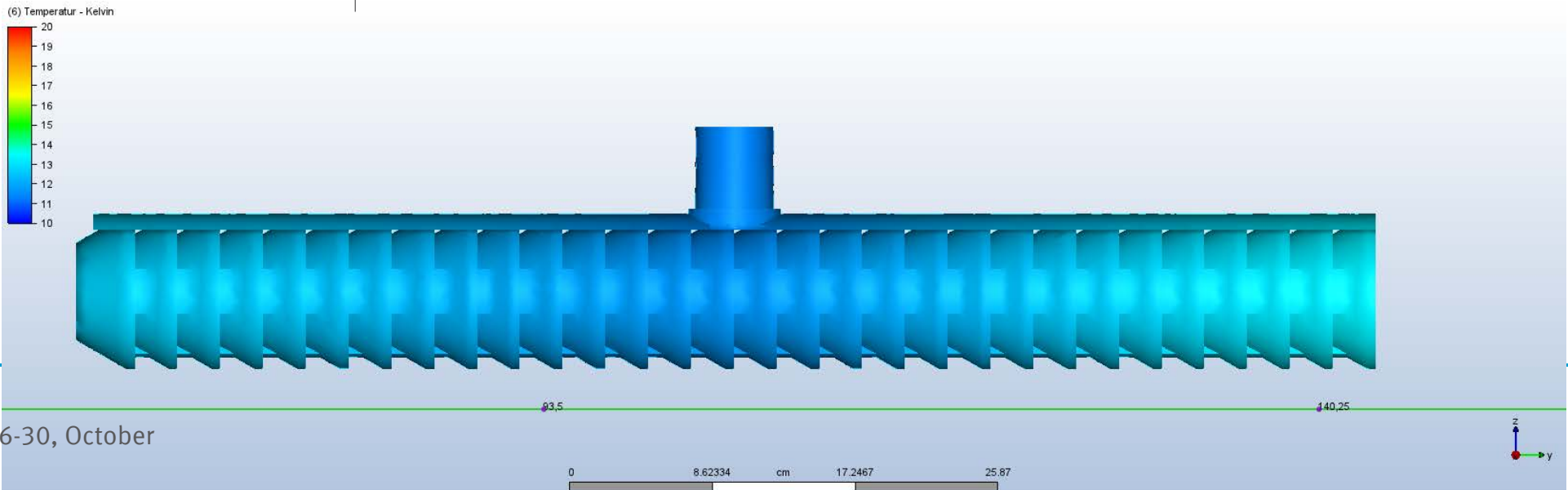
# Next steps: Fine tuning the positioning of the pump

Proposal: Modify the beam line slightly to enable a symmetric cryopump.



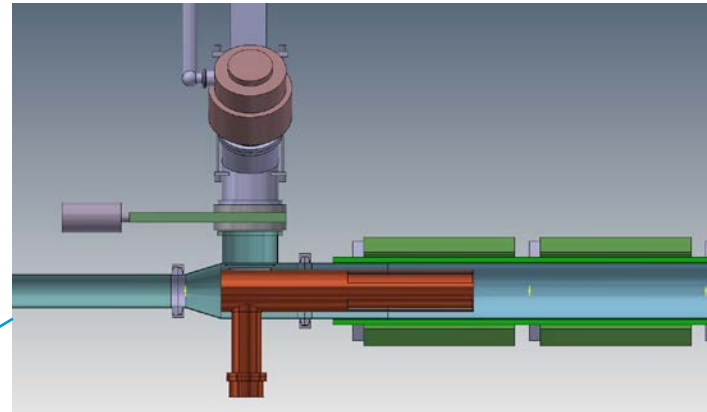
# A symmetric cryopump

- Length:  $\approx 80$  cm
- Pumping surface:  $6569$  cm<sup>2</sup>
- Regeneration interval:  $\approx 4$  months
- Minimal temperature: 12K
- Maximum temperature: 13K

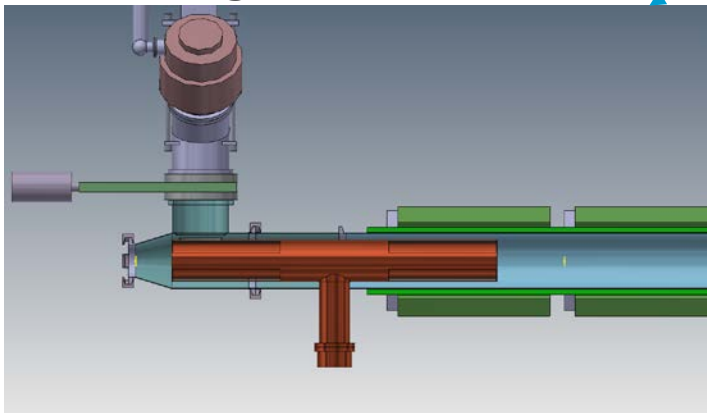


## Possible modifications:

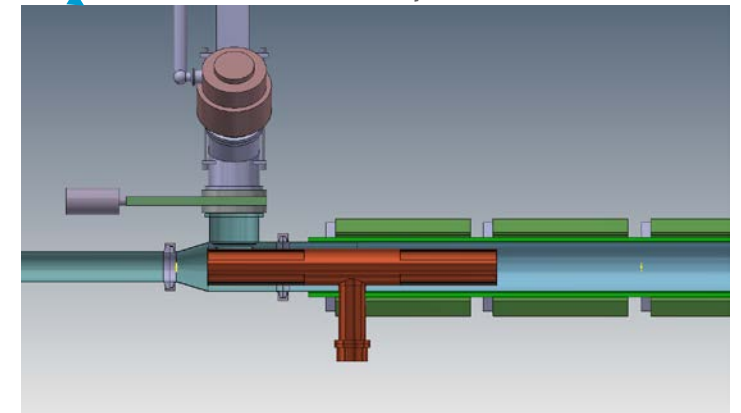
Original beam line.



Elongated beam line.

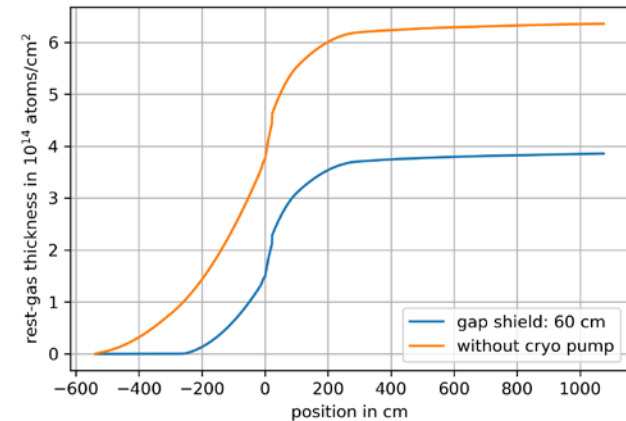
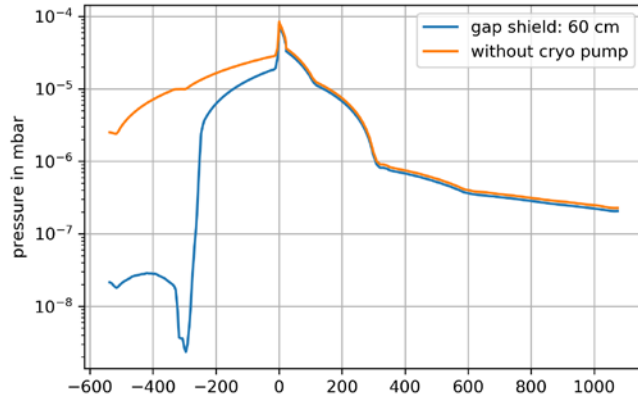


Remove components.

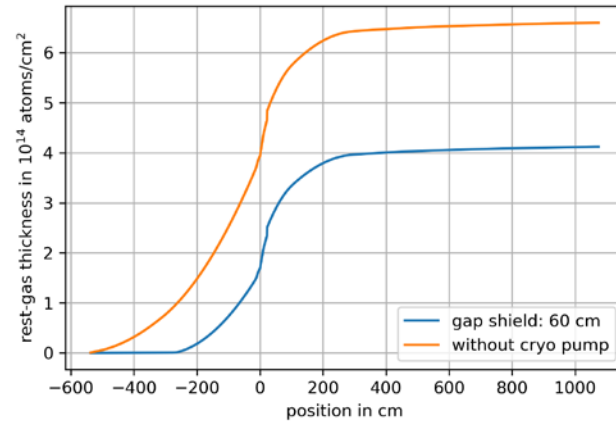
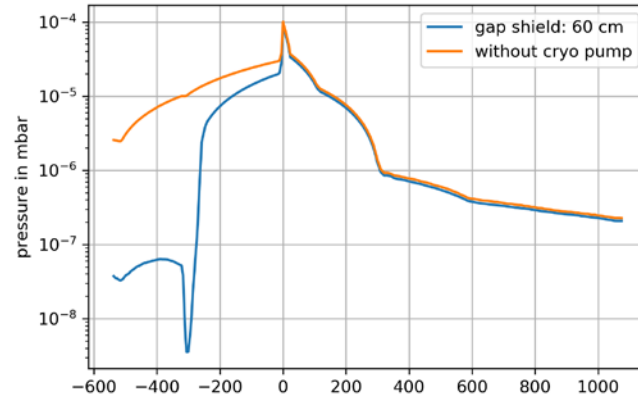


# Comparison of the two options

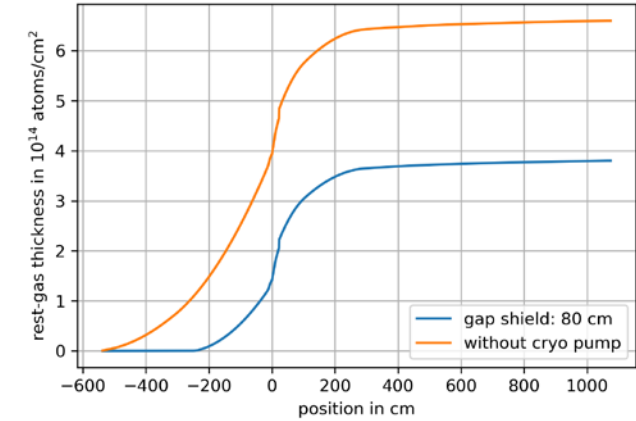
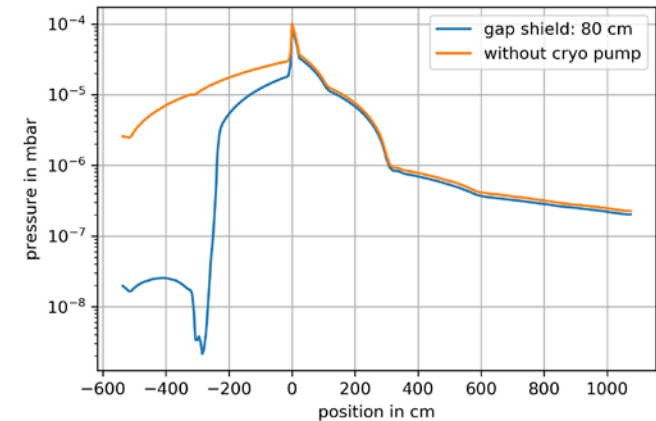
Elongated beam line.



Original beam line.



Remove components.



## Summary and outlook

- Due to engineering challenges and general optimisation a symmetric cryopump would be ideal.
- A symmetric cryopump requires a modification of the beam line.
- We require input from the other groups which of the offered options is the most feasible.
- Possibly there are other options we have not considered yet.



**Thank you for your attention!**

**Are there any questions?**

