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Progress of the Cryopump for PANDA

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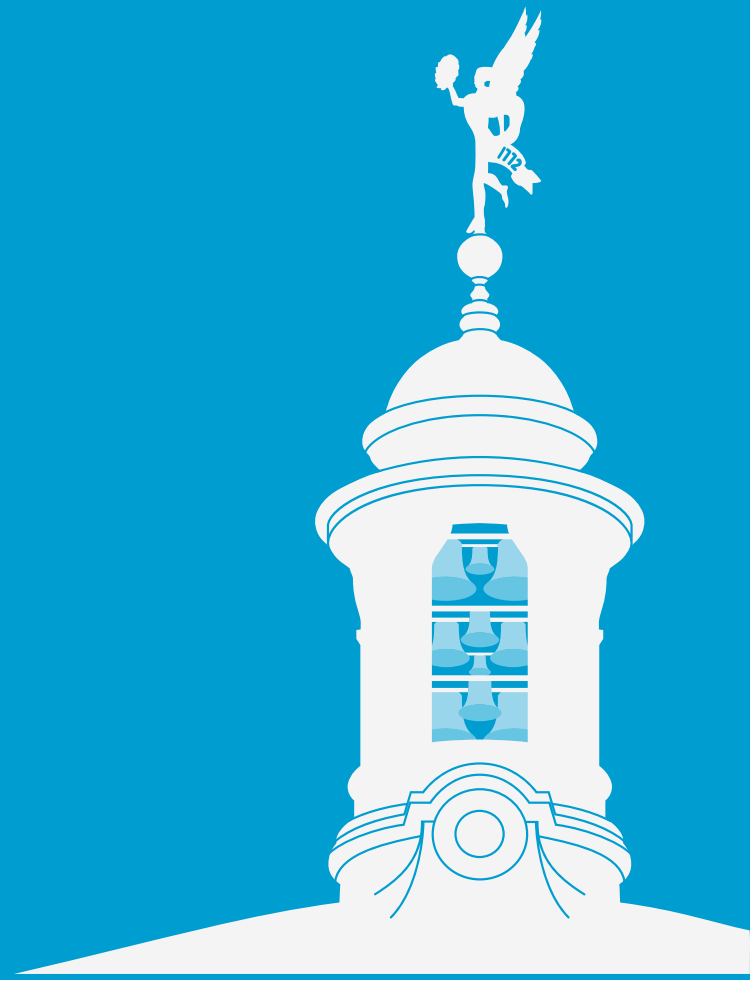

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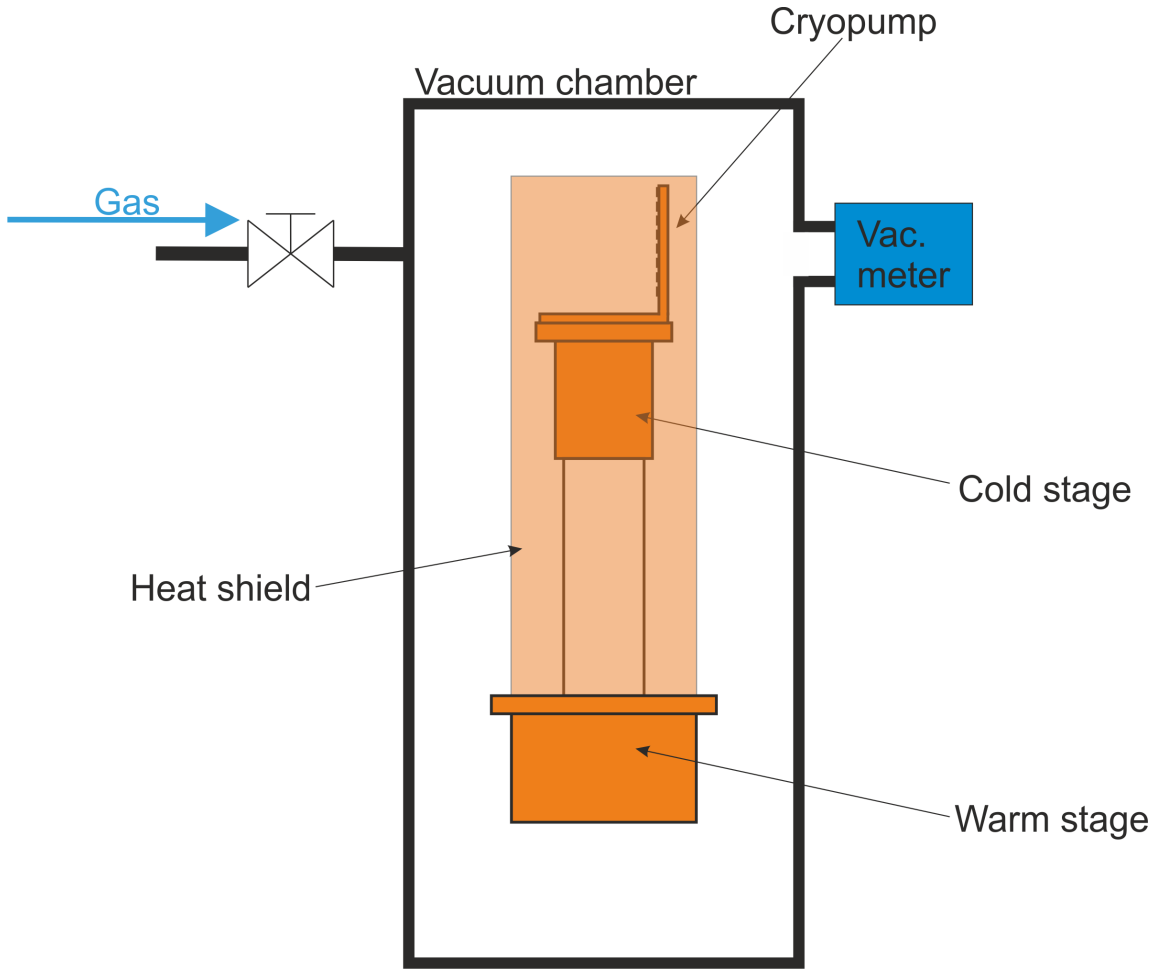
Review of last time

- Design for the beam pipe section containing the cryopump.
- Simulations of the effects of uneven distribution of rest gas on the regeneration interval.
- Temperature simulations concerning the effects of glue and activated charcoal

- Today: First experimental results!

Experimental Setup:



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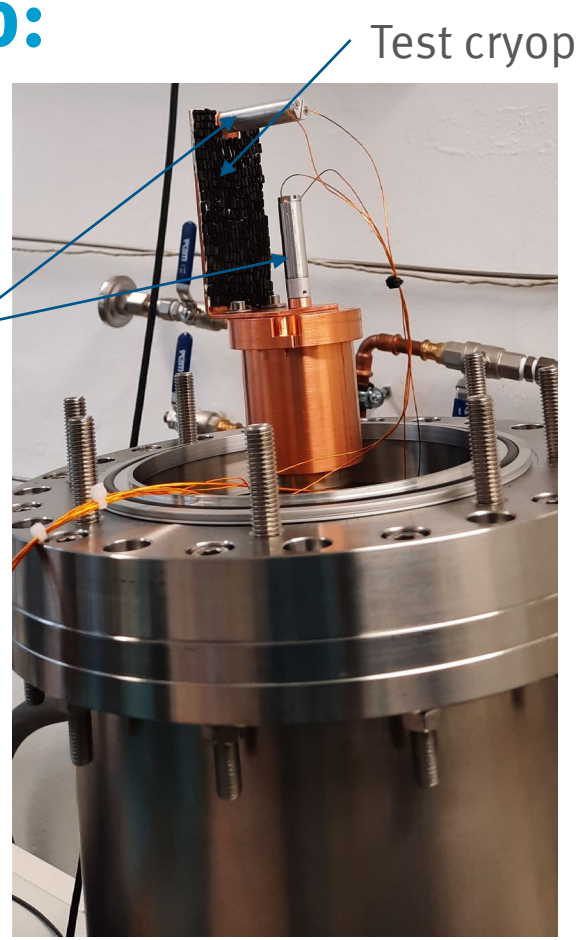
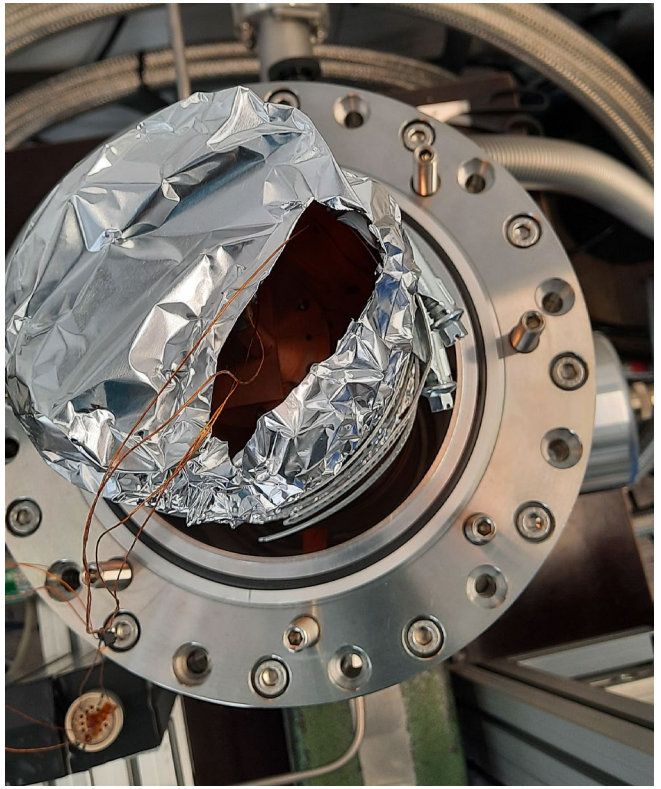
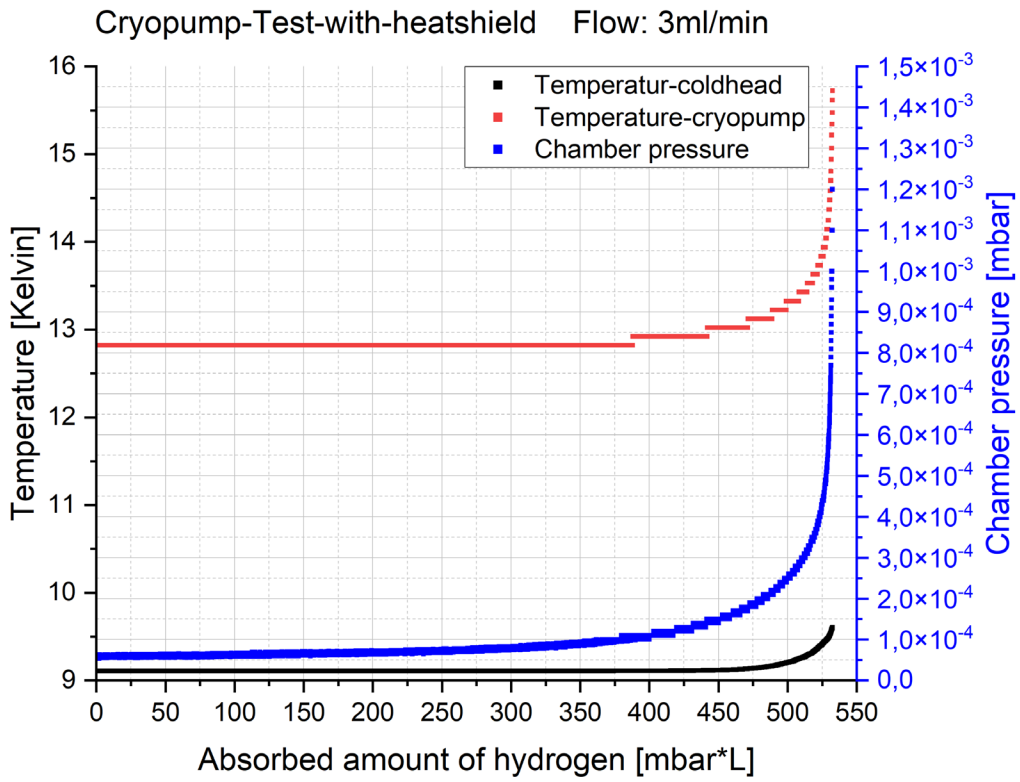


- Dimensions: 40mm x 87.5mm
- Pumping area: 35 cm^2

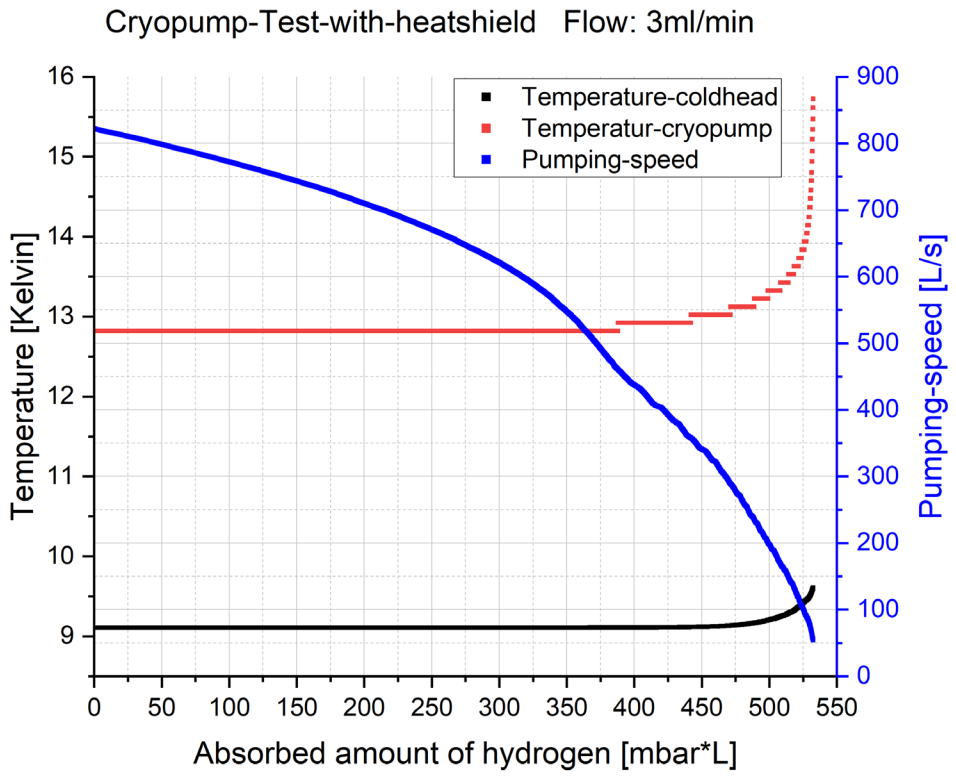
Experimental Setup:



Experimental results



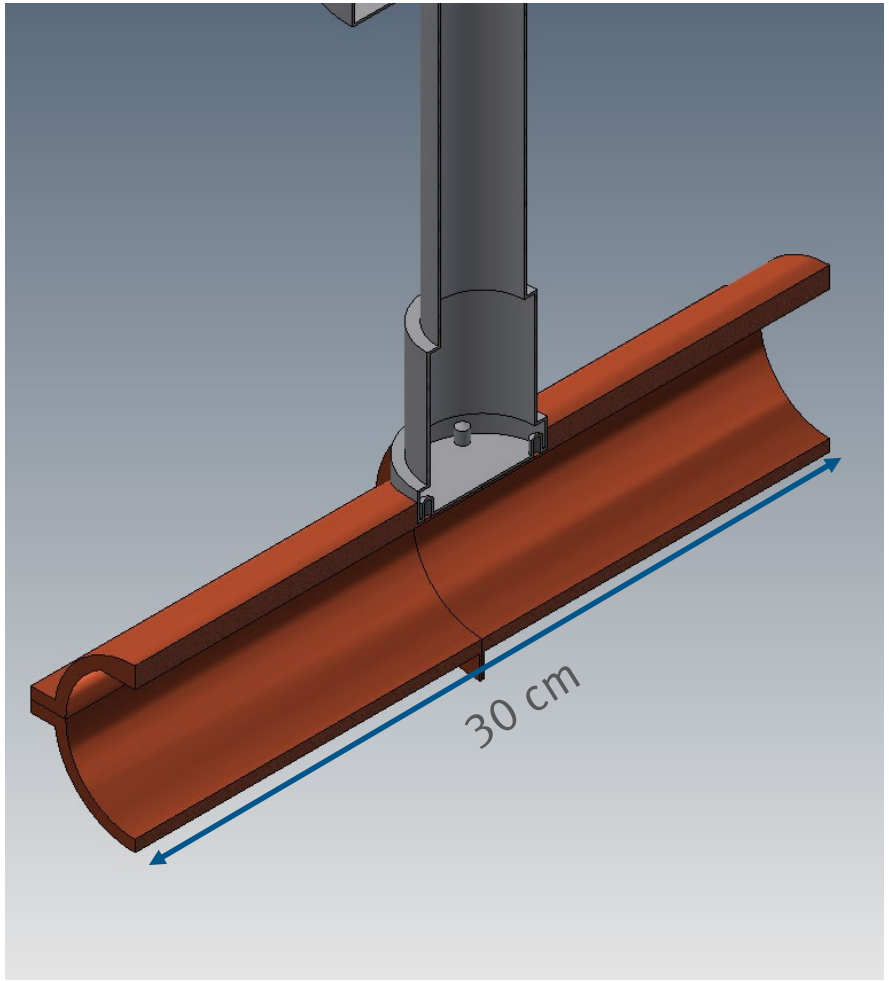
Experimental results



- This particular cryopump has a pumping speed of ≈ 800l/s and a capacity of ≈ 413mbar*L
- Extrapolating to a full size cryopump for PANDA:
  - Pumping speed of ≈ 100,000l/s
  - Regeneration interval of ≈ 2 months (assuming outgassing rate of 0.01 mbar*l/s)

Next steps:

- A prototype crypump is being designed
- Modular design
- Testbed for features such as gentle degas mode



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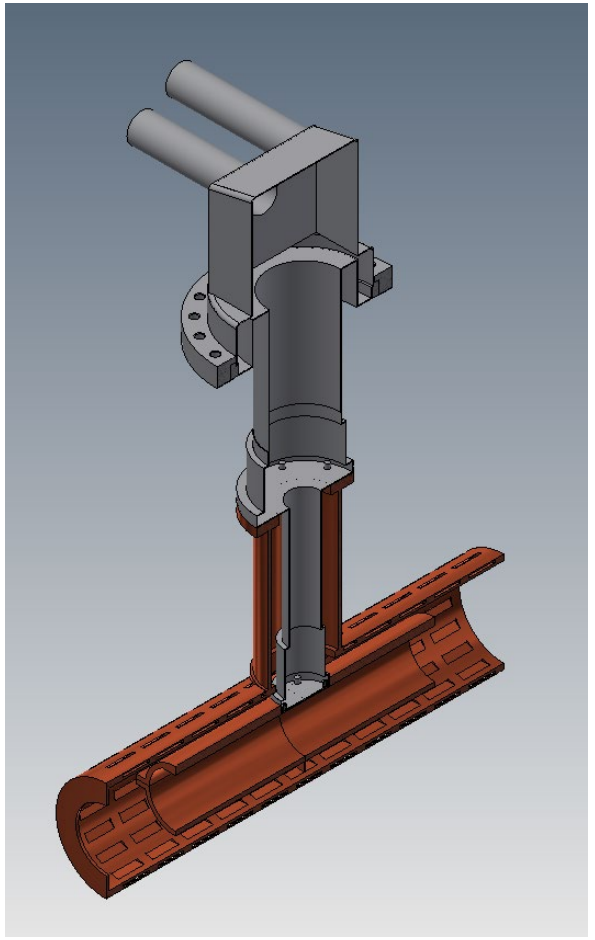

Summary

- A small test cryopump was built and tested:
  - PANDA cryopump has a pumping speed of ≈ 100,000l/s and a regeneration interval of 2 months

- A prototype is being designed which will form the basis for the final cryopump

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Thank you for your attention
Are there any questions?