Sample Environment JRA-Meeting

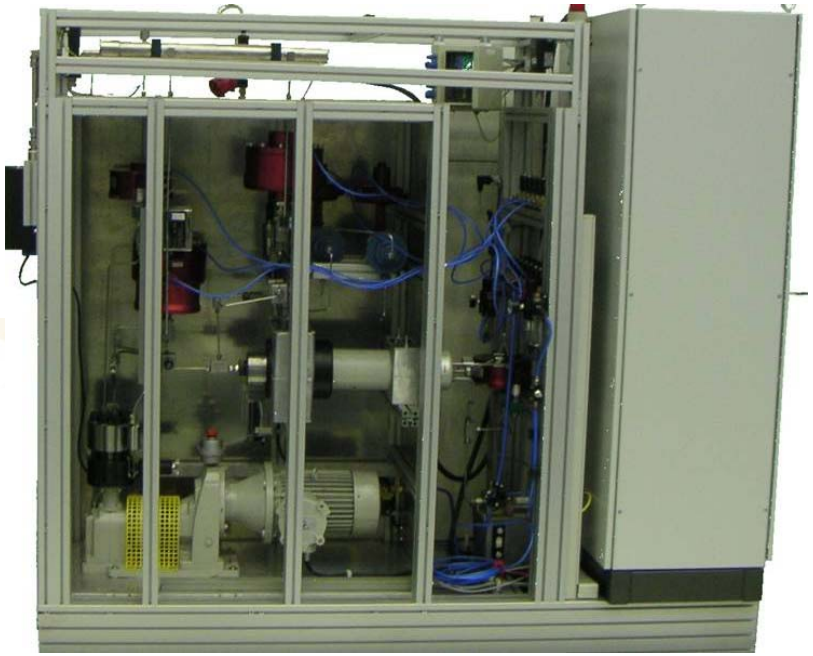
Helmholtz-Zentrum Berlin

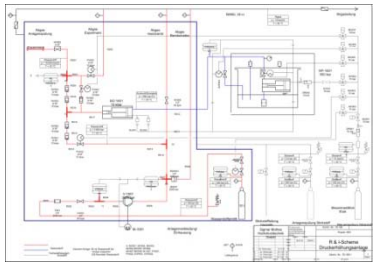
March 29th - 30th 2011

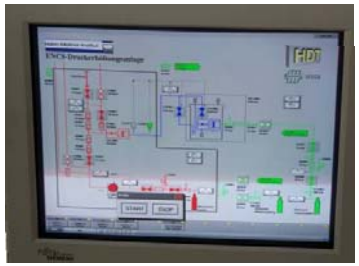
Progress Report Mar'11 – High Pressure Task

10 kbar Pressurizing System for Hydrogen:

- leakages in high pressure tubing -> removed
- 10kbar valve leaky -> in repair
- leakage in safty housing - > removed
- high pressure volume measured with 50ml
- operable for 10kbar hydrogen tests with LLB-cell
- SPS malfunction !!!







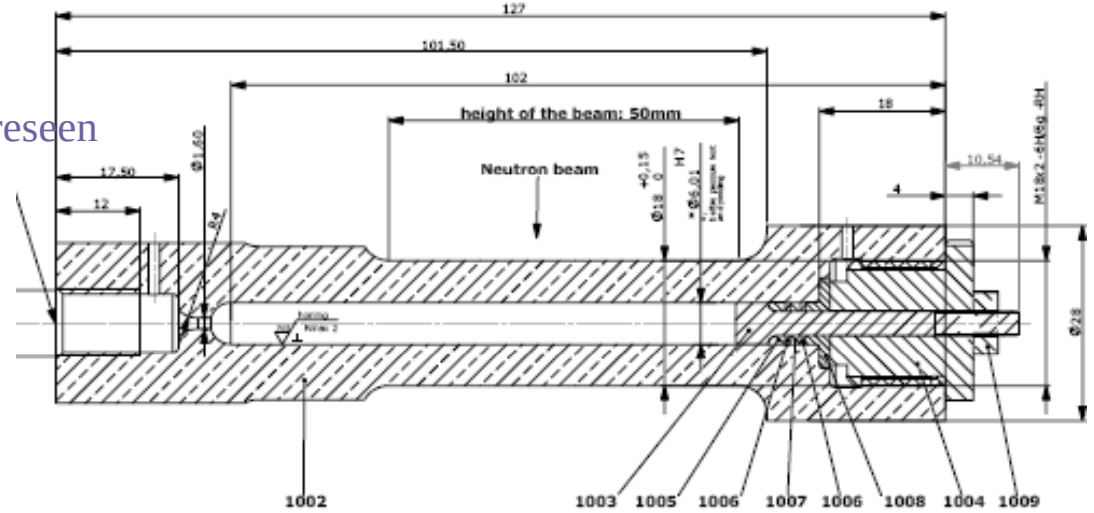
3 kbar Pressurizing System for Hydrogen:

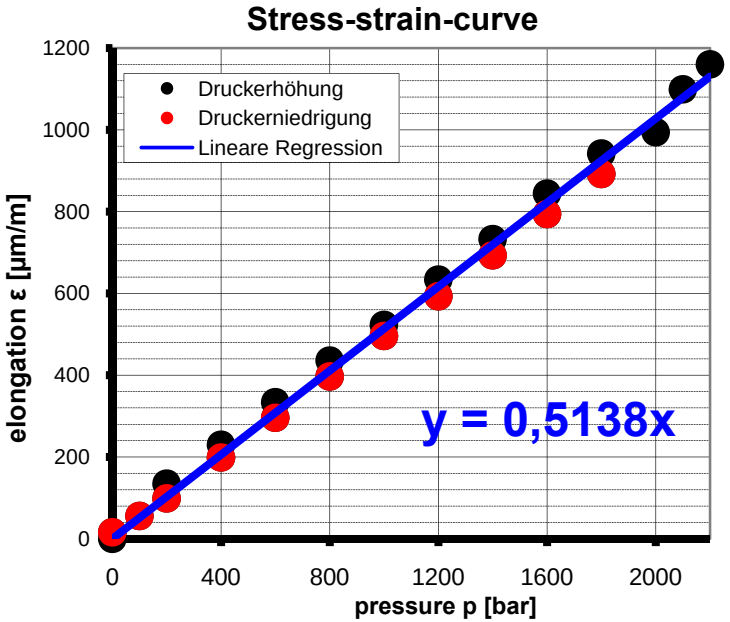
3 kbar Pressurizing System for Hydrogen:

- purging system installed
- remote control software developed
- test compartment constructed
- high speed camera in installation
- operable for 3kbar hydrogen burst tests

8 kbar LLB inert gas cell (CuBe 18mm/6mm):

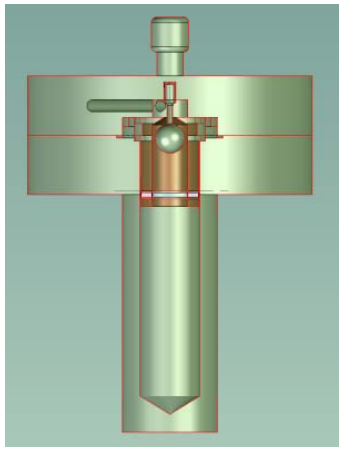
- strain gauches installed
- long term tests with hydrogen loadings foreseen
- in-situ operation in hydrostatic pressure experiments at low temperatures planned





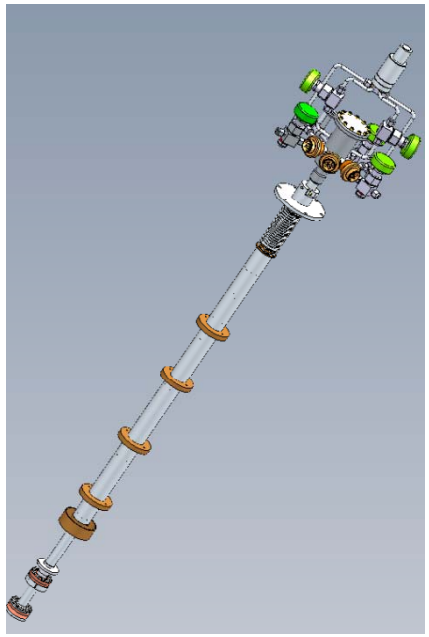
Progress Report Mar'11 - Gas Adsorption Task

OF-Adsorption-Stick (1.5K - 600K, 300bar) with Al- sample cells and self-sealing system



- construction finished and approved
- temperature range 77K - 300K problematic
- new design by ILL planned

d_a (mm) 300 K	400 K	500 K	600K	
12	300 bar	100 bar	10 bar	1 bar
14	300 bar	200 bar	50 bar	20 bar
20	300 bar	300 bar	300 bar	300 bar



Cyogenfree Sorption Systems (10K – 600K)

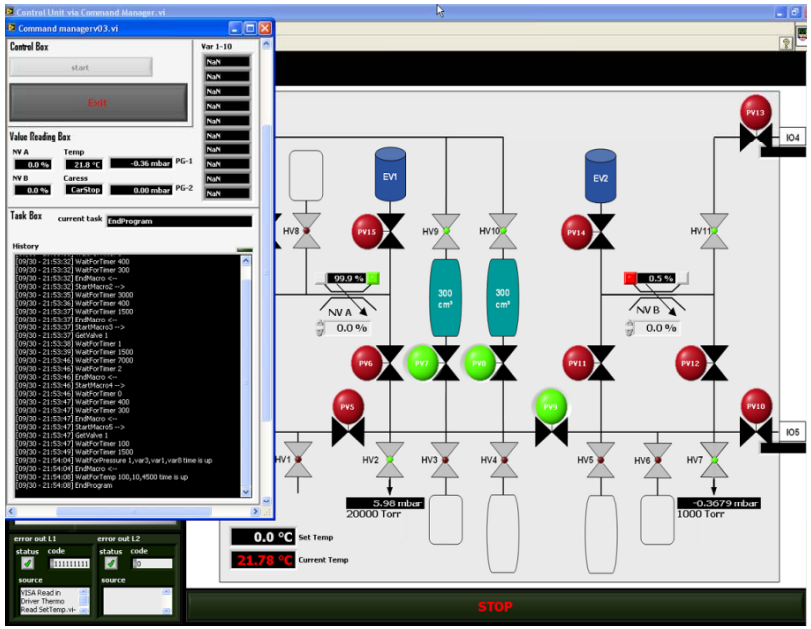
Mini-Pulsetube

- constructions finished and approved
- modification for synchrotron under development

Gifford-McMahon

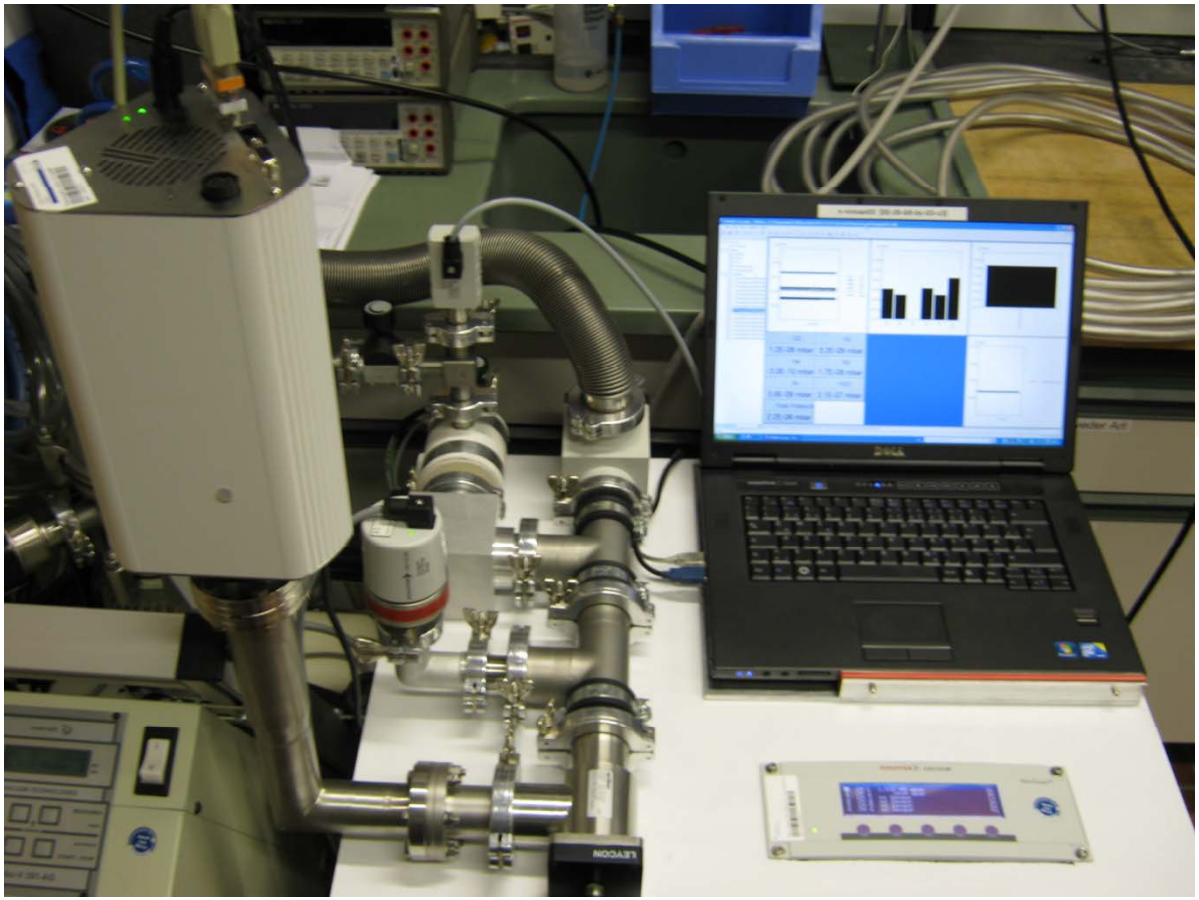
High temperature stage 800K

Automated Gas dosing System (500K, 200bar) with dynamic flow option



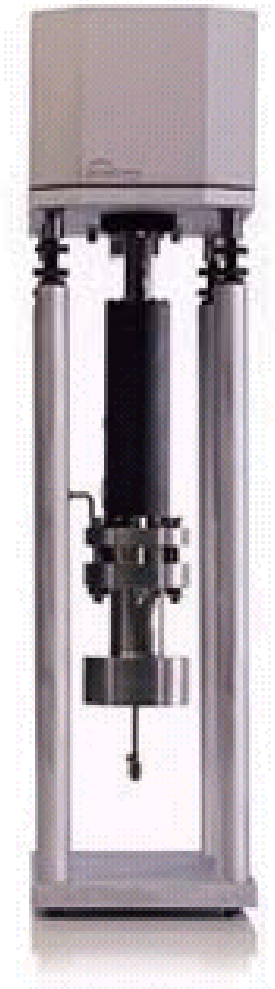
- construction finished and tested
- automated dosing software under development

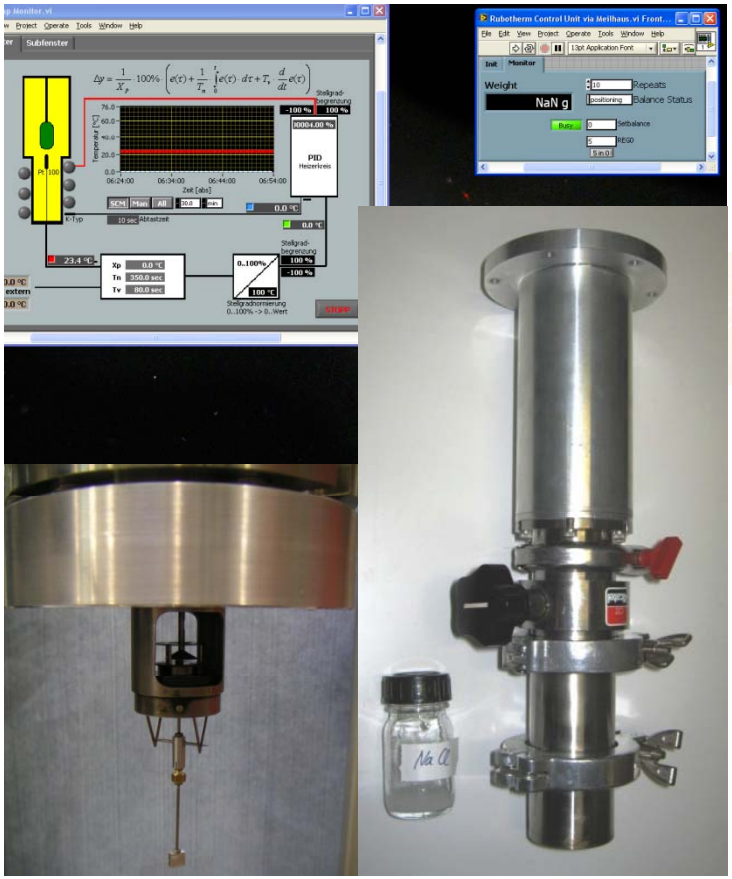
Residual gas analysis station



- construction finished
- calibration tests outstanding

Gravimetric Sorption System (500°C, 100bar)





- “static” humidity regulation added
- new heater and balance control-software
- high-temperature and pressure tests
- problem to find neutron friendly material for high-T/high-P region !

Thanks for your attention

Nico Grimm

Michael Meissner

Jörg Dathe

Klaus Kiefer