Status of the Pellet Target preparation in ITEP

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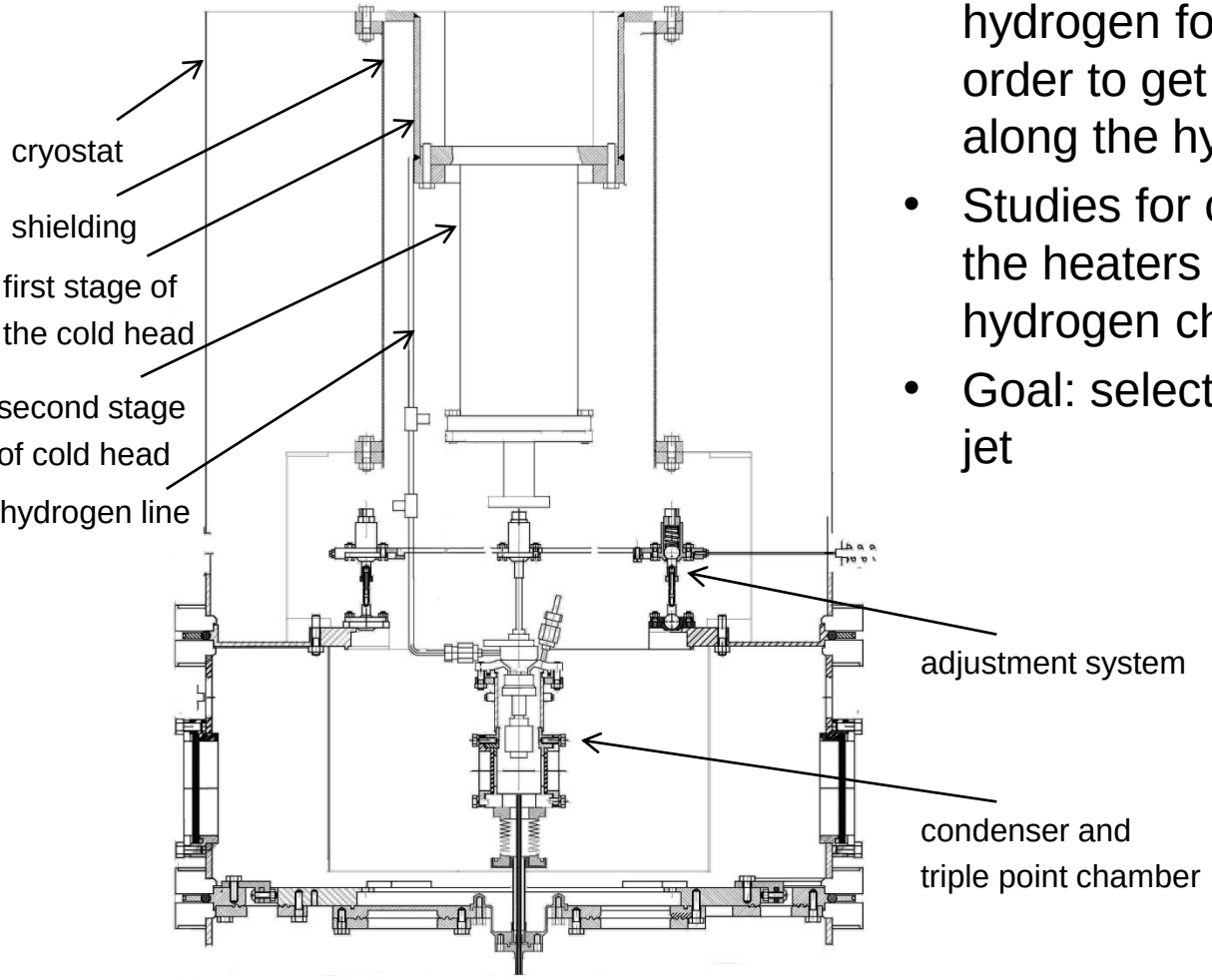
Development of the target prototype

Drawing of cryo-cooler and triple point chamber

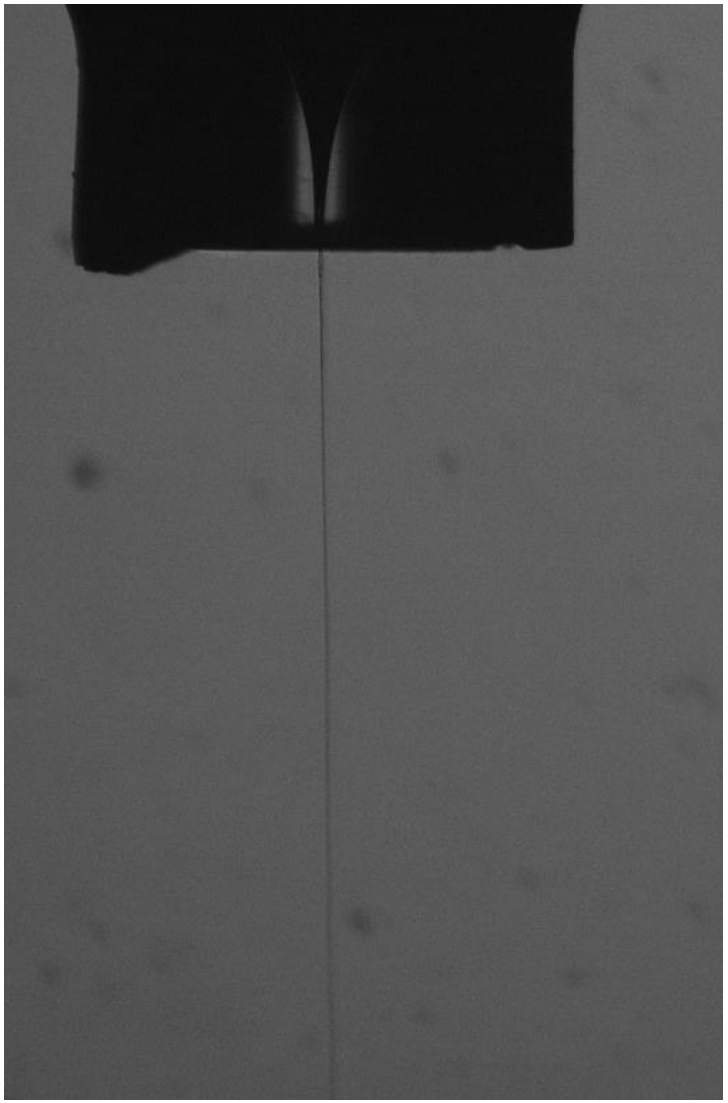


- Regular long time cooling tests with hydrogen for optimization the construction in order to get better temperature distribution along the hydrogen channel
- Studies for construction and best location of the heaters in the critical points of the hydrogen channel
- Goal: select optimal parameters for stable jet

*cold head and the condenser are connected via thick flexible cupper wires (not shown)

Current achievements for target prototype

Example of hydrogen jet



Test on 25 of February 2016, generator off,
thin jet, diameter unknown (image not calibrated yet)

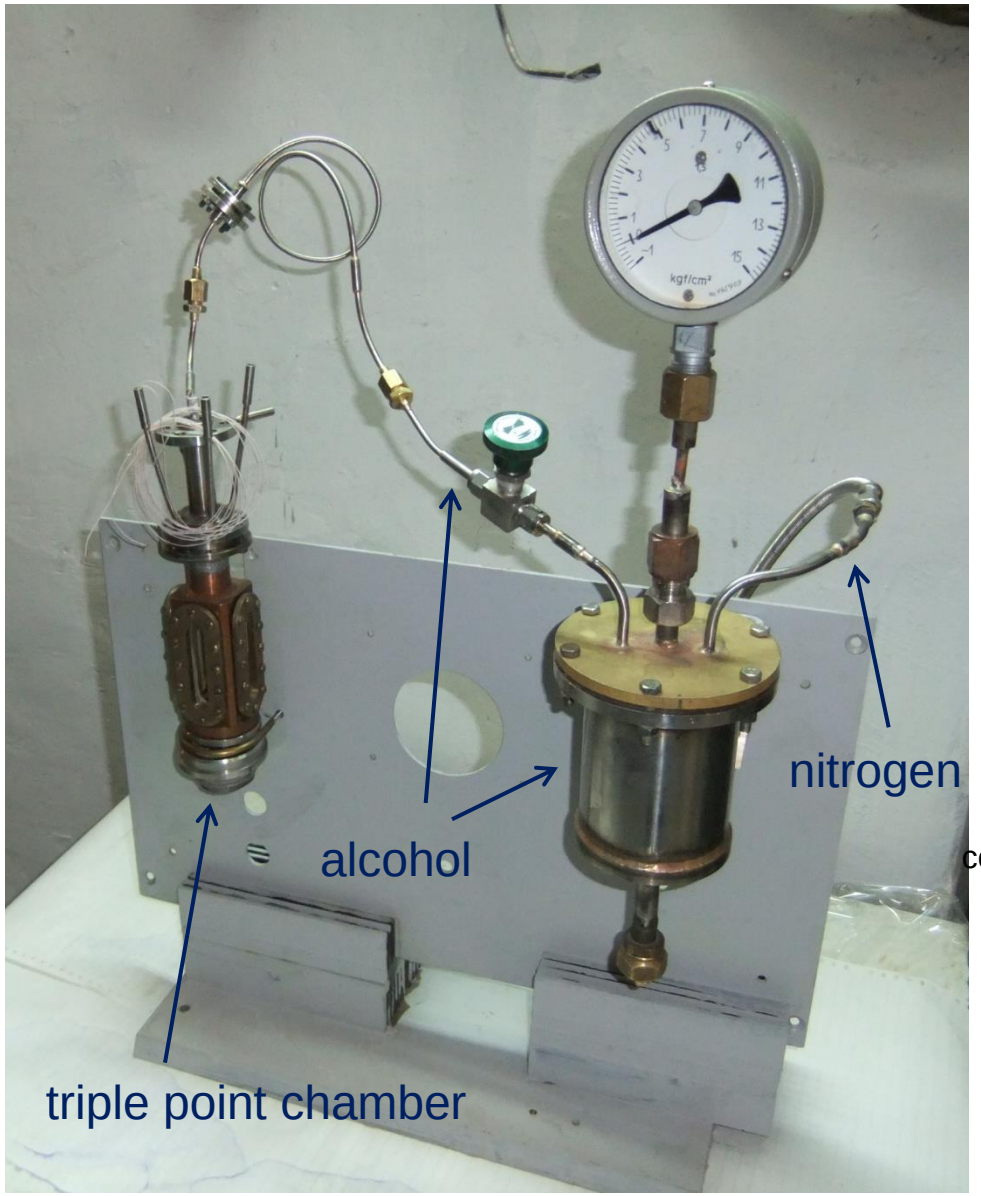
- Stable long time jet (> 4 hours) interrupted by the command at the end of working day

Strategy of tests:

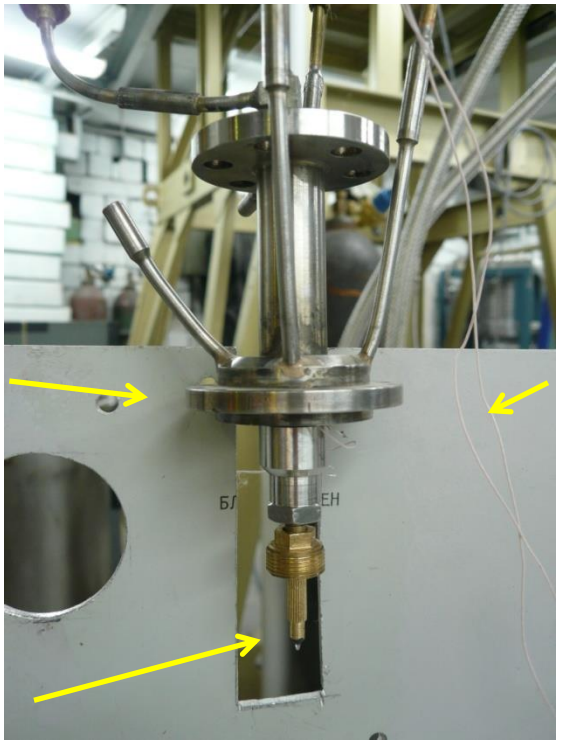
- from big nozzles to small nozzles
- definition of optimal parameters - pressures, temperature, heating power
- definition of boundary conditions for parameters

Tests with water

Test station with distilled water or alcohol



- Investigations of the construction for protection of the nozzles
- From big nozzles to small nozzles, stable water jets with nozzles 30 µm are achieved, smaller nozzles are under preparation
- Preparation for tests with new diagnostics



Transfer of the first target prototype from FZJ to ITEP

current status: negotiations with the Russian custom, regular corrections of documents, but have progress

Outlook

- Low temperature tests with hydrogen jets
- Check the efficiency of the nozzle-sluice adjustment
- Registration and control of the jet characteristics and process of droplet production in TPC with help of CCD, video and Line scan cameras, measurement of the size, velocity and frequency of formed droplets along their travel path
- Continue the study of the technology for protection of the nozzles from blocking by impurities;
- Writing of TDR