Status of the Pellet Target preparation in ITEP

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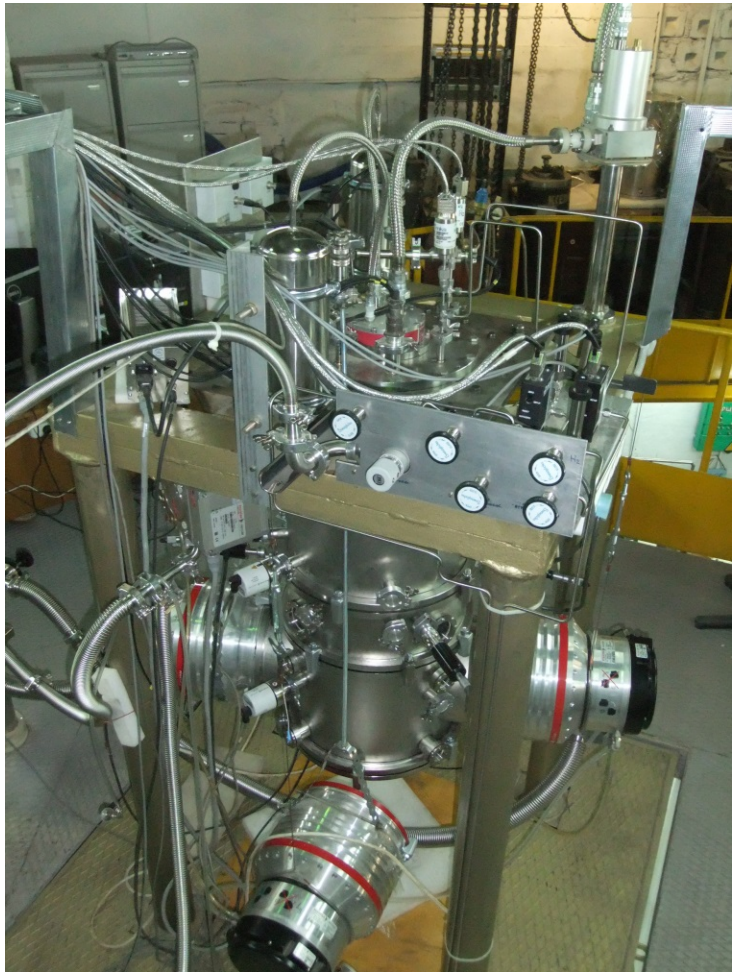
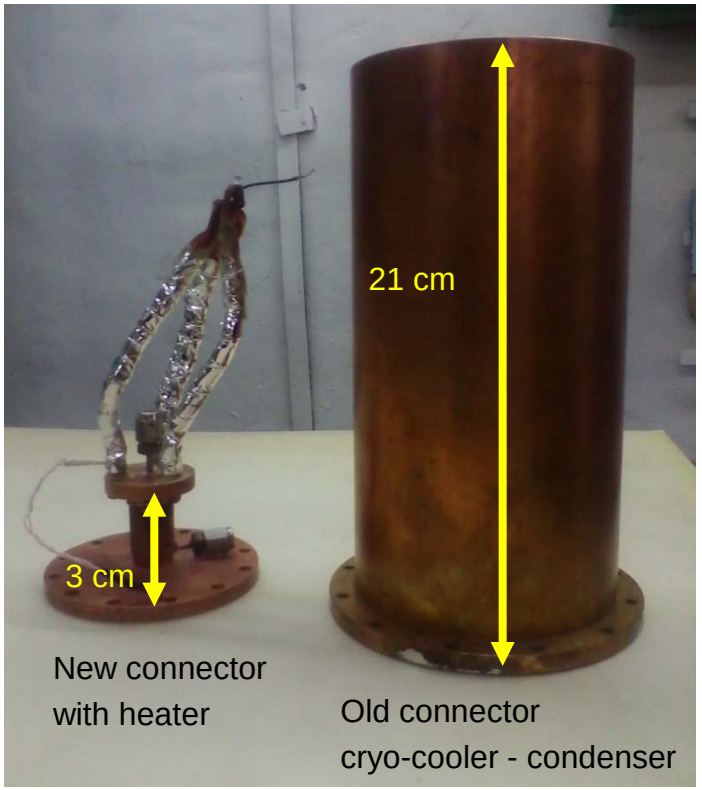
Development of the target prototype



- assembling with the new geometry done
- gas lines inside the cryostat mounted
- adjustment system installed
- first cooling tests with hydrogen started



Development of diagnostic system

CCD camera PixelFly

resolution: 1280x1024 pixels

dead time: 0.3 s

min exposure: 5 μs

CCD camera S2C-077FO-G1

resolution: 1040x1160 pixels

dead time: ~1 min

min exposure: 100 ns

Goal: measurement of the pellets below sluice at high velocities

1 new PhD student in Pellet Target group

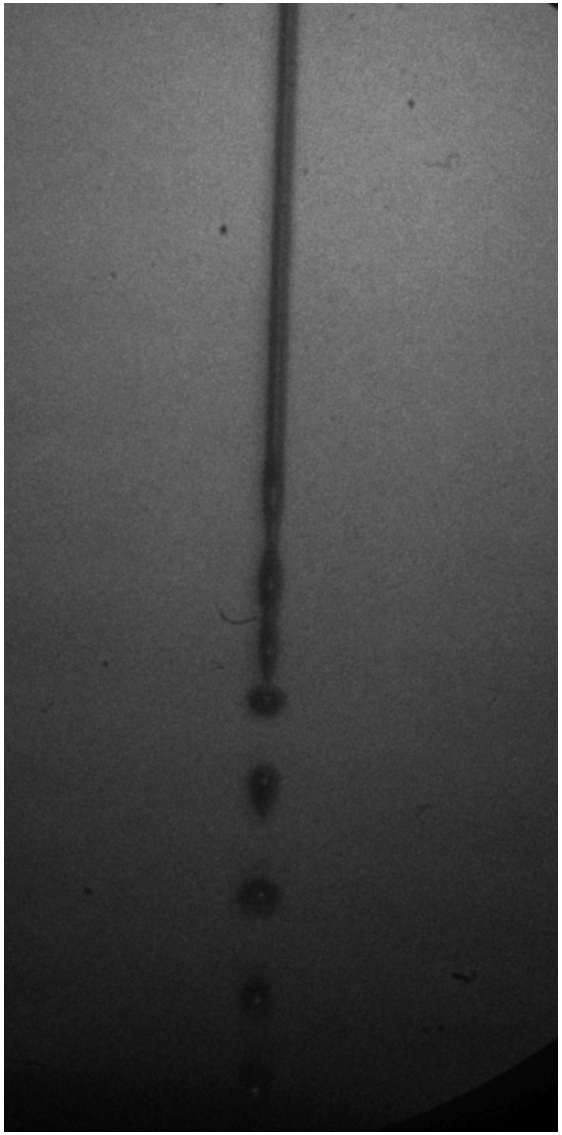
3 young scientists involved from other group for tests with fast CCD camera

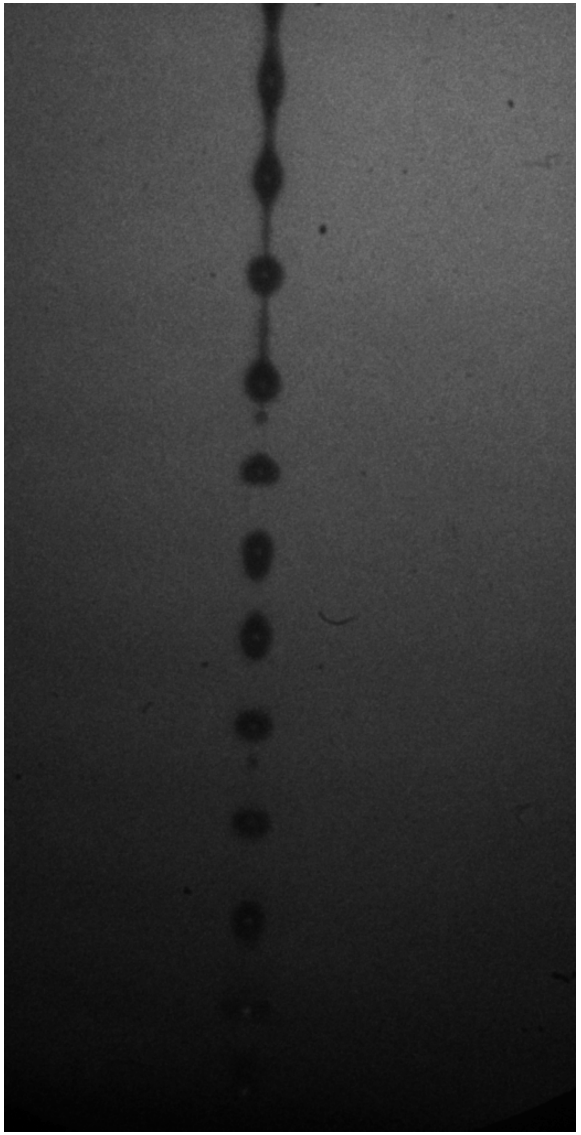
2 young scientists involved in development of Doppler interferometry method

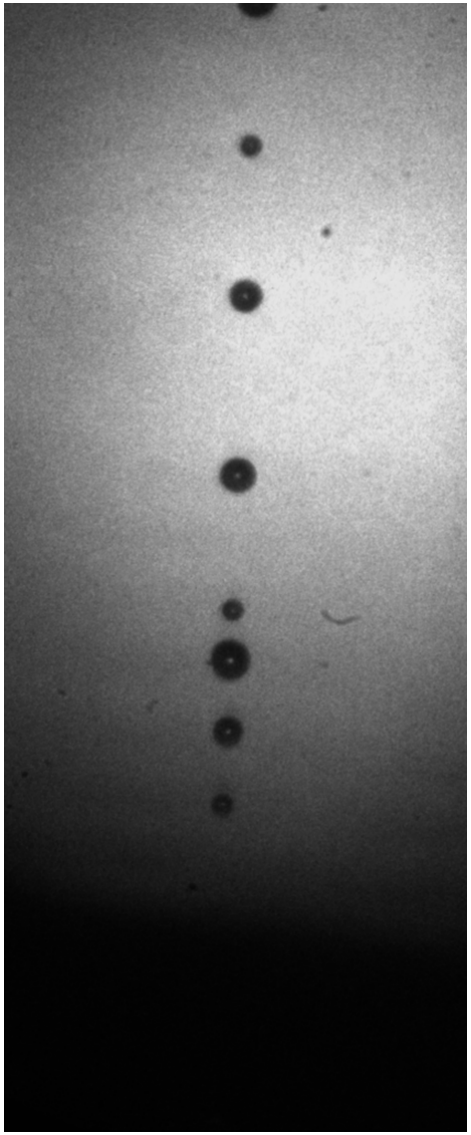
Tests with water, development of diagnostic system

Goal of the first tests – selection of the optics and getting of the images of jet and droplets. Study of possibility for application of such camera for measurements.

Tests with water, first results with new camera







Nozzle ≈ 64 µm, (left photo) jet Ø ≈ 70 µm and droplet Ø ≈ 128 µm
CCD camera exposure: 300 ns

Transfer of the first target prototype from FZJ to ITEP

1) Disassembling and packing of the first prototype of the target in FZJ — done
2) Preparation of the place in ITEP for the target from FZJ — done
3) Packing documents for the cargo — done
4) Negotiations with the transport company and Russian custom — good status
5) Document preparations in FZJ — waiting*
6) Document preparations in ITEP — good status

waiting* - delay with permission from BAFA (Federal Office of Economics and Export Control)

Outlook

- Low temperature tests with hydrogen
- 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