New prototype module for the Forward Tracker

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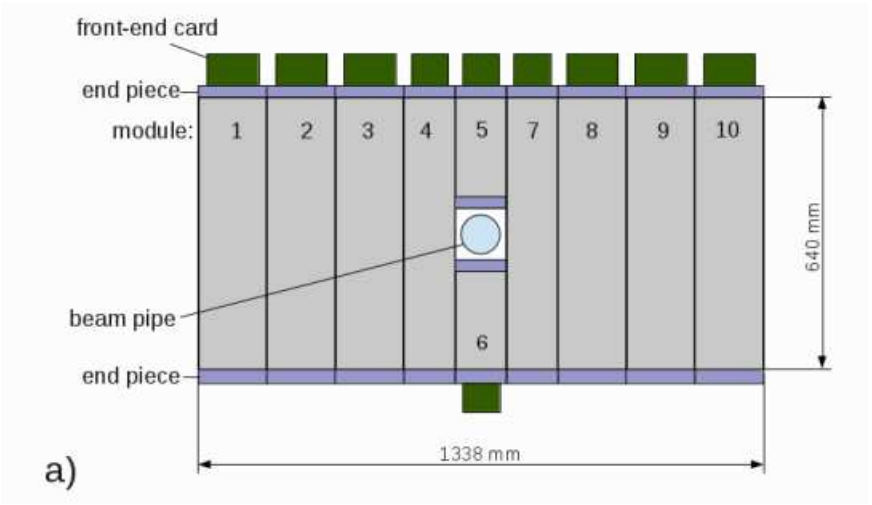
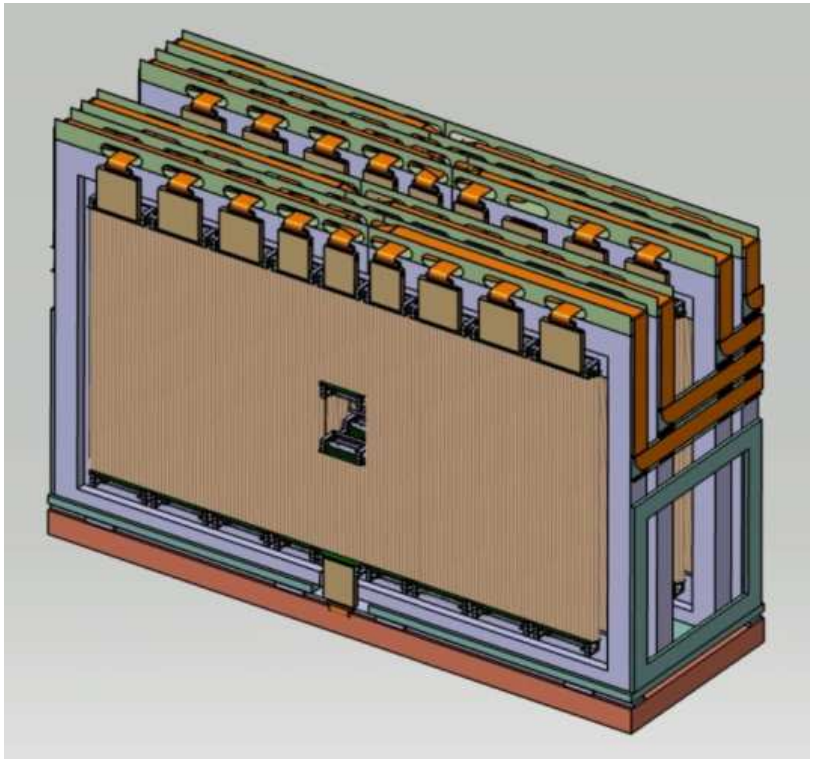
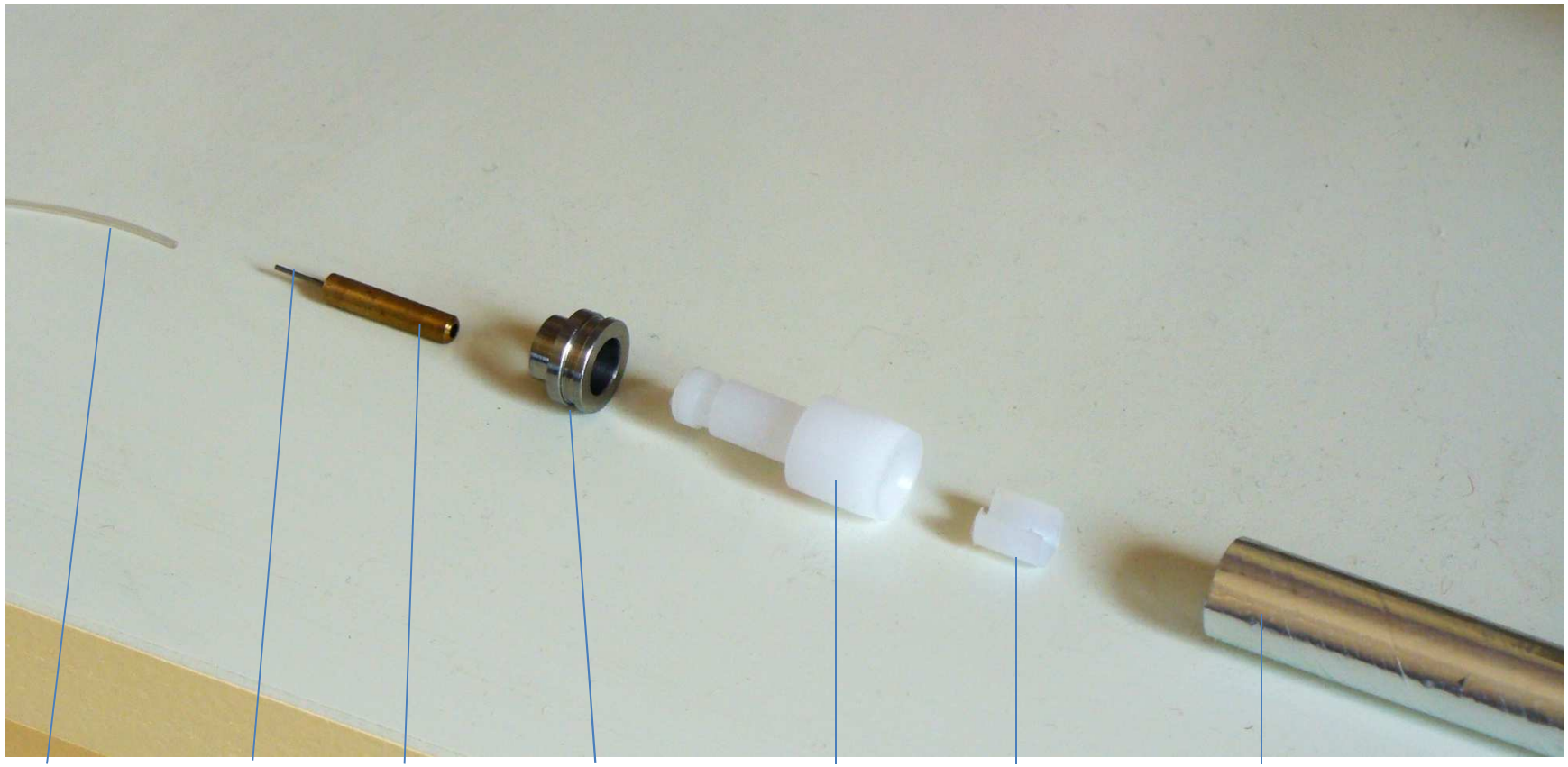
Modular construction of FT

- Tracking stations FT1-FT6: 400 modules (12224 straws)
- Standard module: 2x16 straws

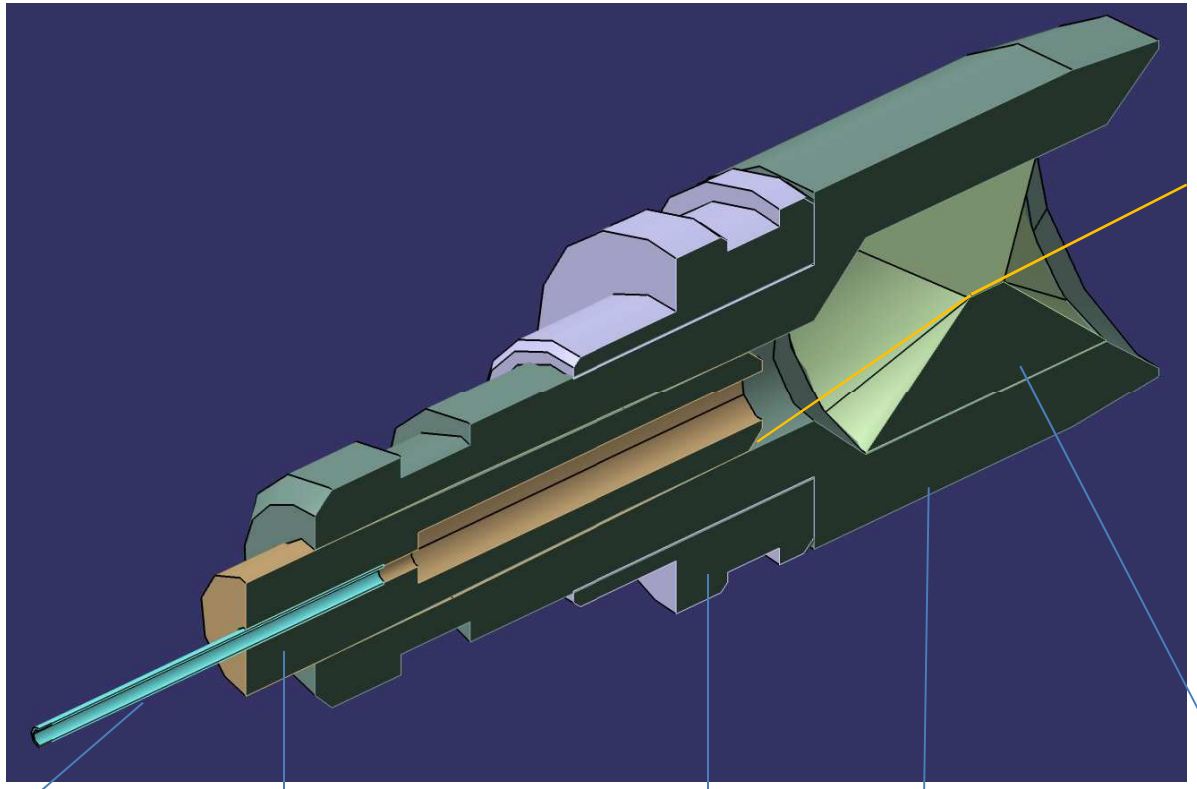




Design of end-plugs

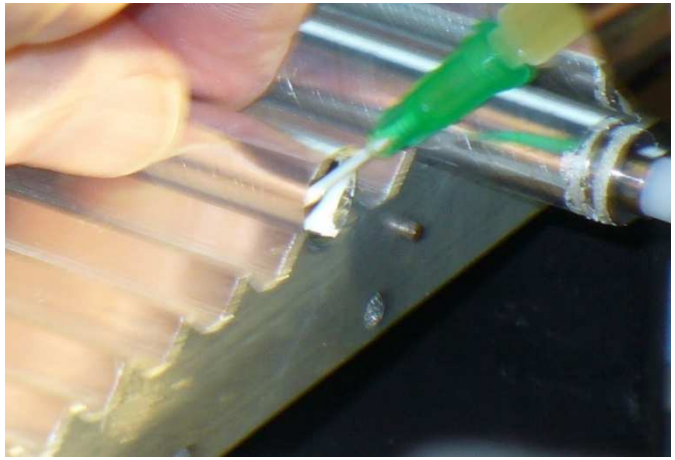


Design of end-plugs



Gluing end-plugs inside straws

Application of two-component adhesive inside straw



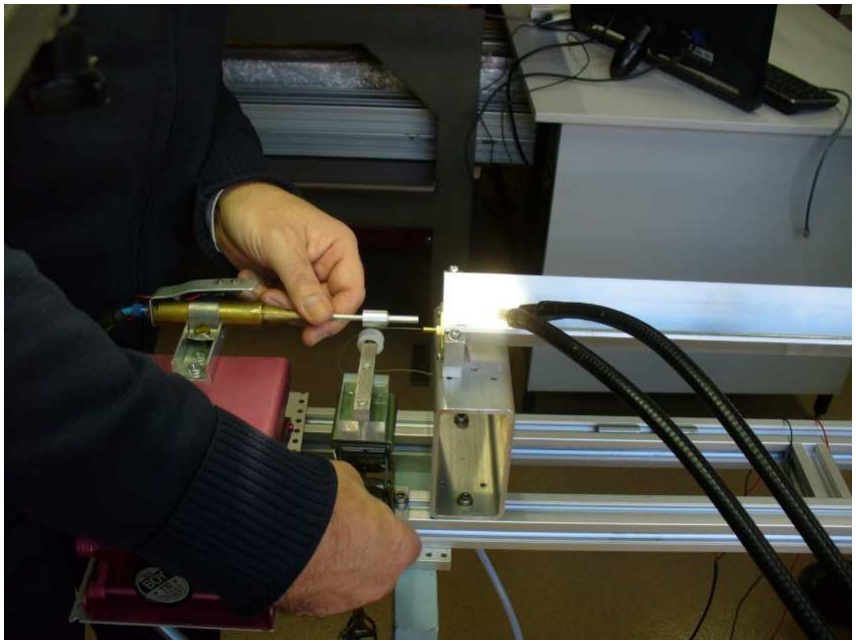
Application of conductive glue on steel ring

Inserting end-plug

Stretching anode wire

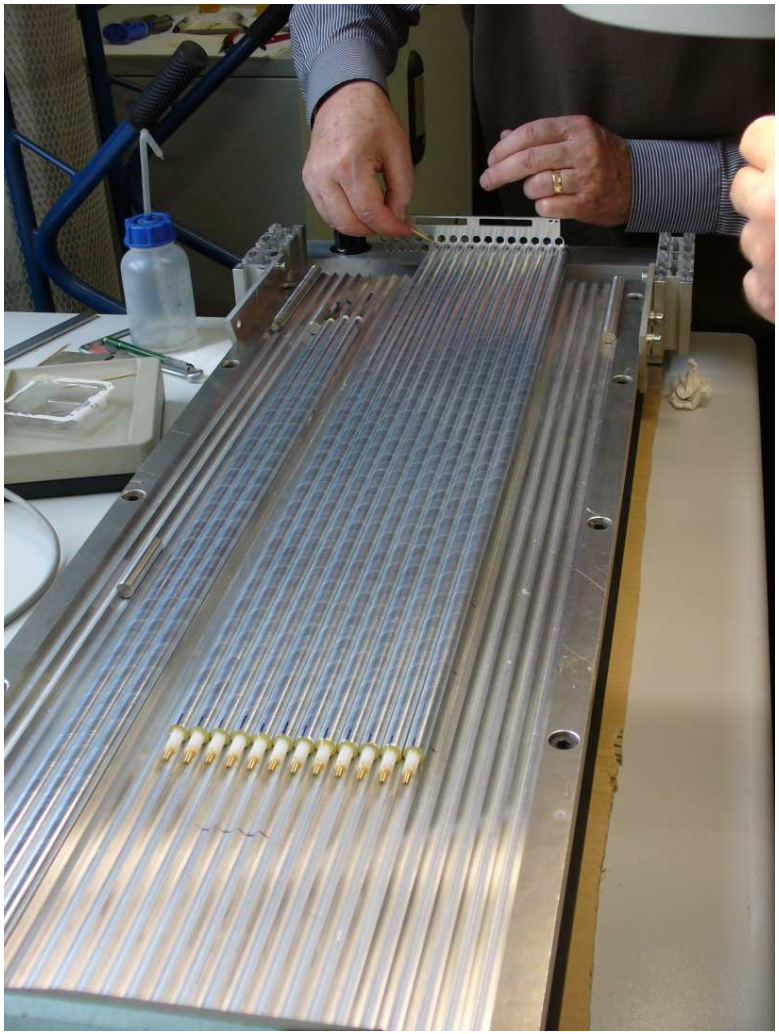
- Pulling guide with wire through straw
- Hanging weight 50 G on wire

- Inserting brass pins in end-plugs
- Pressurizing straw
- Hammering pins



Assembly of straw modules

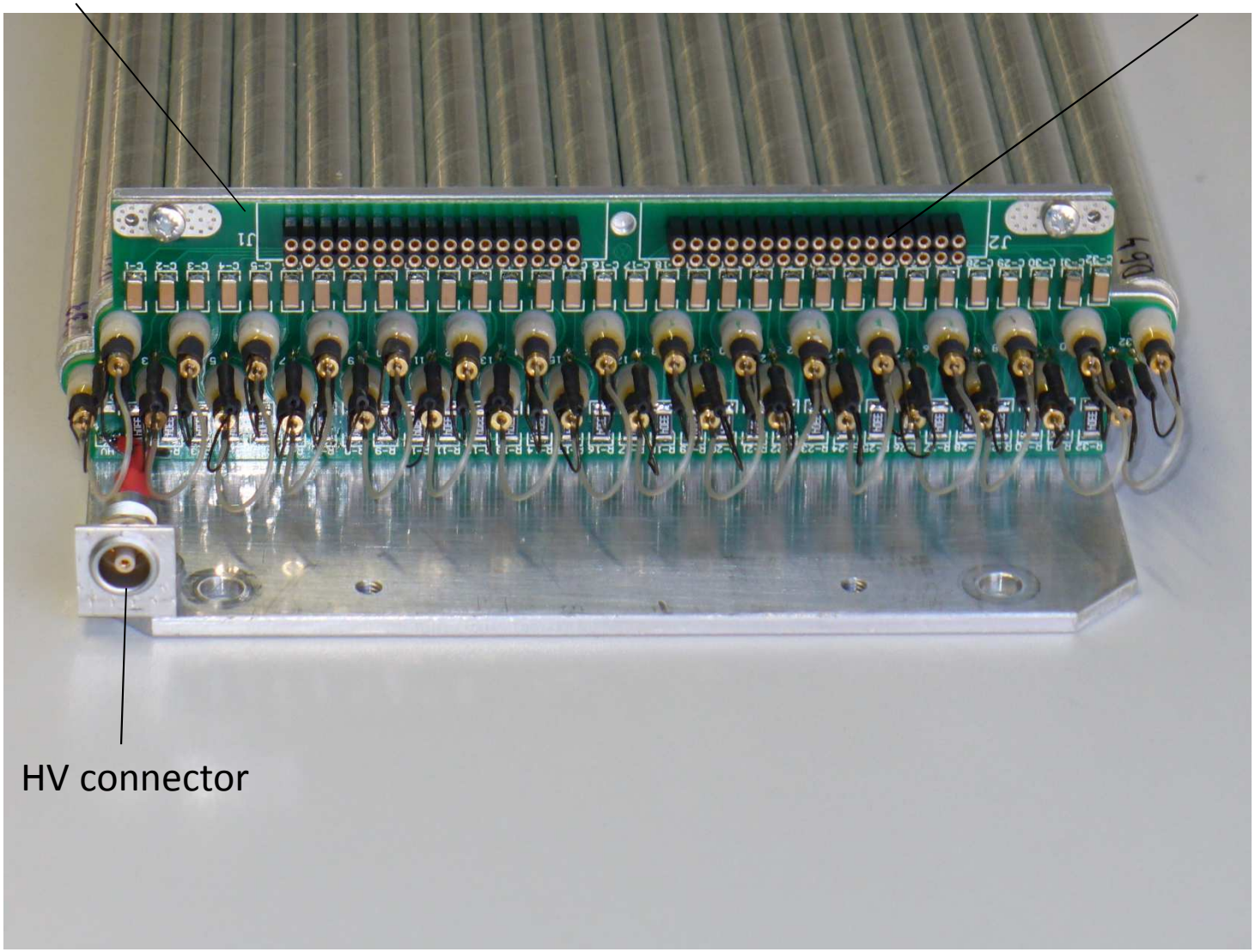
Arranging straws in a layer and gluing them with conductive glue to alu. bracket



Pressurizing straws and gluing straws together

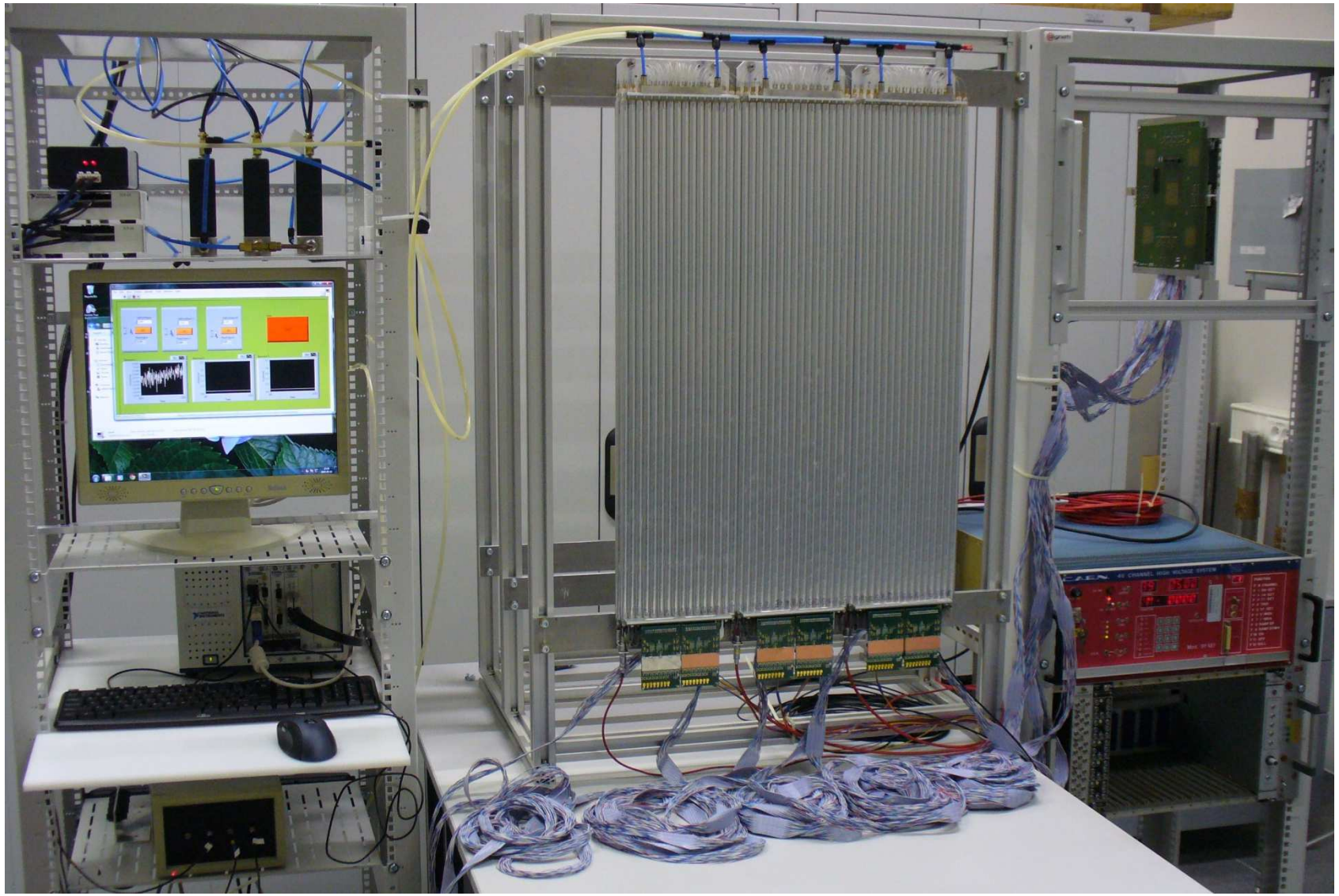
Single module

Signal side



Gas distribution side

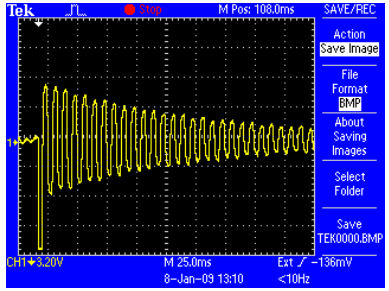
Three prototype modules equipped with read out electronics



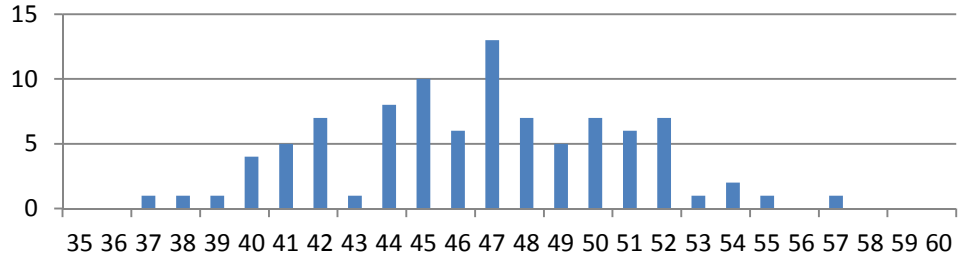
Preliminary tests with 55-Fe

Problem with wedging wires

- Mechanical tension of wire: measured with precision ~0.5 G



- Large dispersion of wire tension: ~ ±10%



Tension [G]

- In 5 out of produced 100 straws wire broken or not contacting brass pin

  Reason (?) mistake in manufacturing end-plugs: conical brass pins do not fit precisely in conical openings in end-plugs

Plans

- Tests with sources;

  in May test with proton beam at COSY
- Clarification of the problem with wedging the wires
- Improvements of tooling for assembly of straws: gluing end-plugs inside straws and stretching wires
- Corrections of design of end-plugs
- Construction of improved prototype

JS1

JS1 Jerzy Smyrski; 2015-03-17