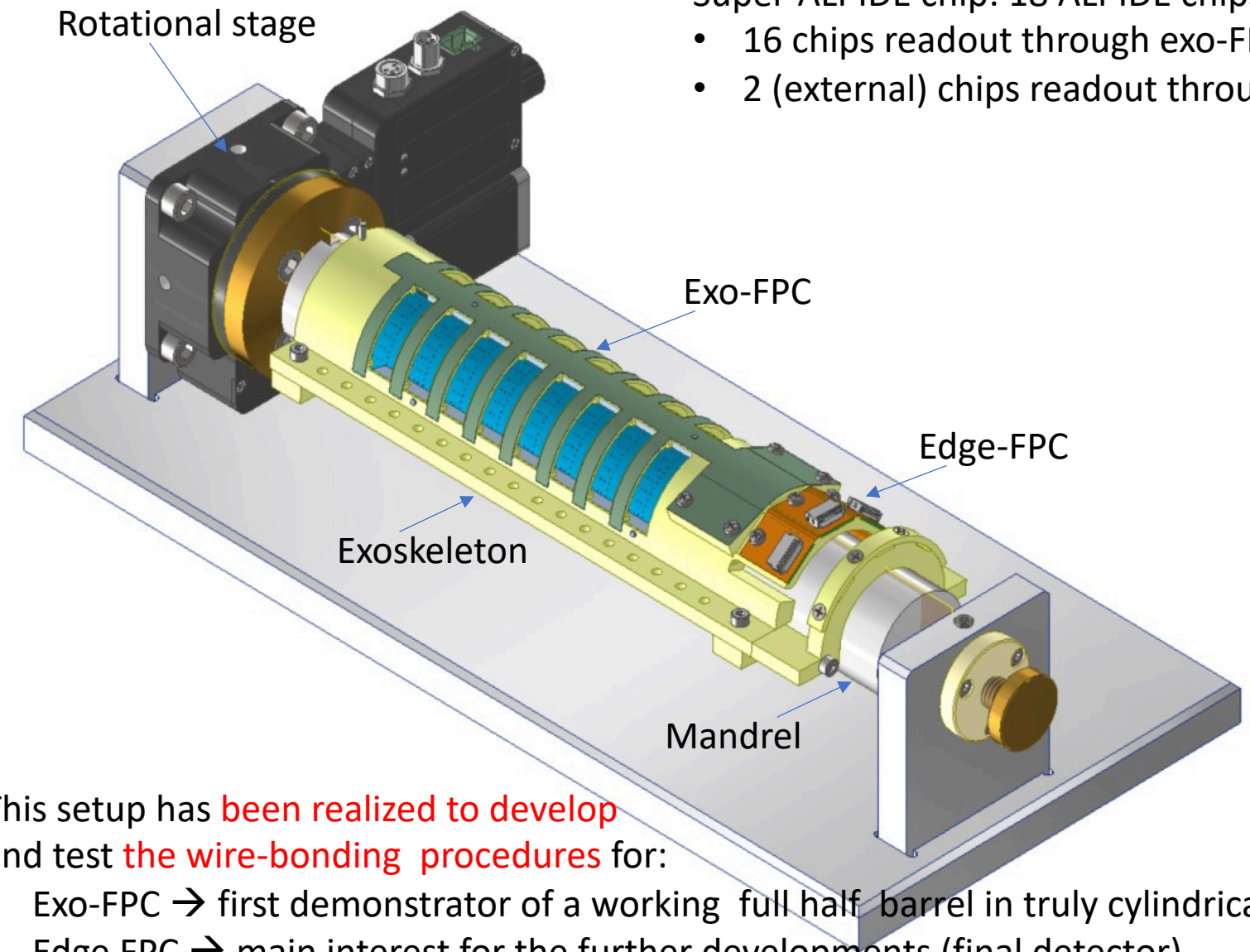
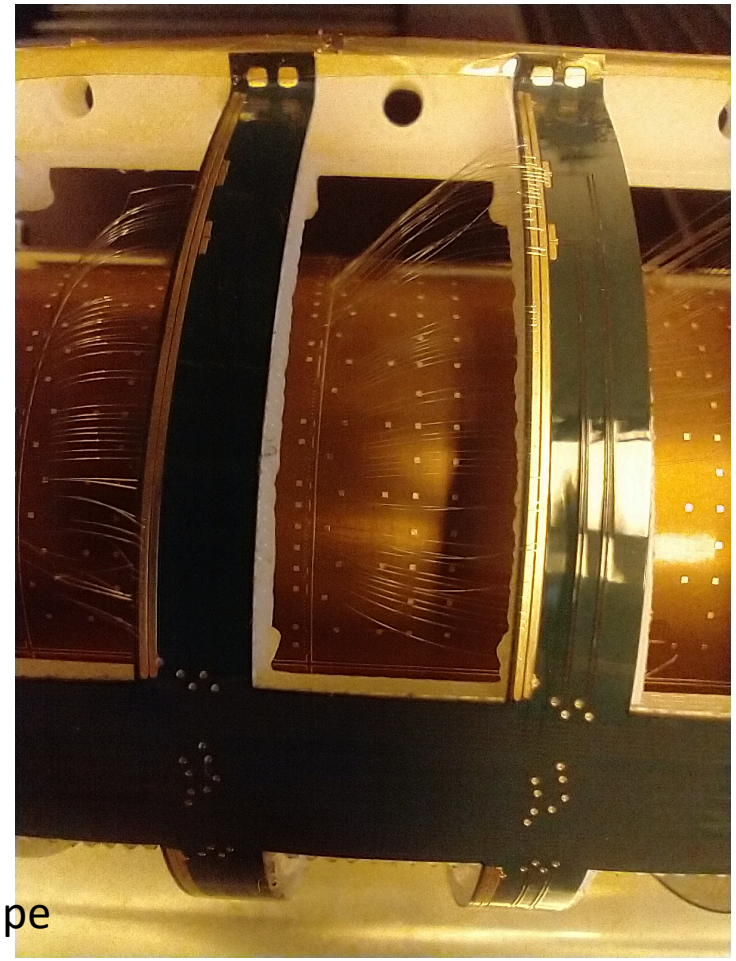
<u>Super-ALPIDE (mock-up) setup</u>: development of the wire-bonding procedure and FPC design



Super-ALPIDE chip: 18 ALPIDE chips over 2 rows in one big structure

- 16 chips readout through exo-FPC [bond over 7 mm pads vertical distance]
- 2 (external) chips readout through edge-FPC [bond at the same quota]



This setup has been realized to develop
and test the wire-bonding procedures for:

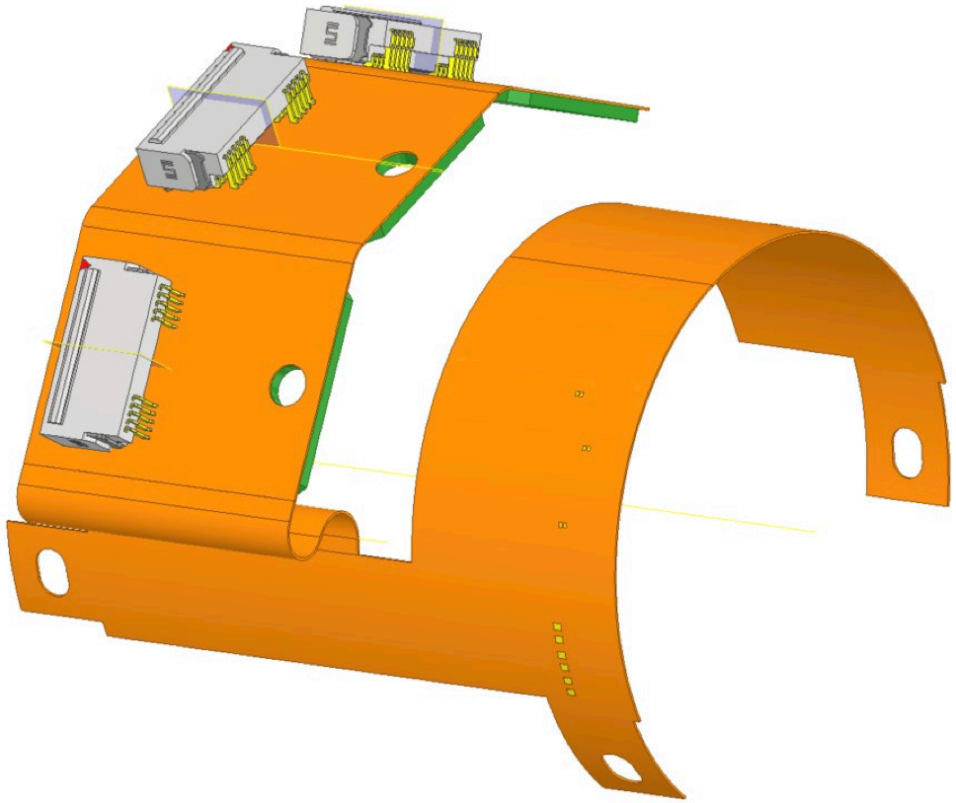
- Exo-FPC → first demonstrator of a working full half barrel in truly cylindrical shape
- Edge FPC → main interest for the further developments (final detector)

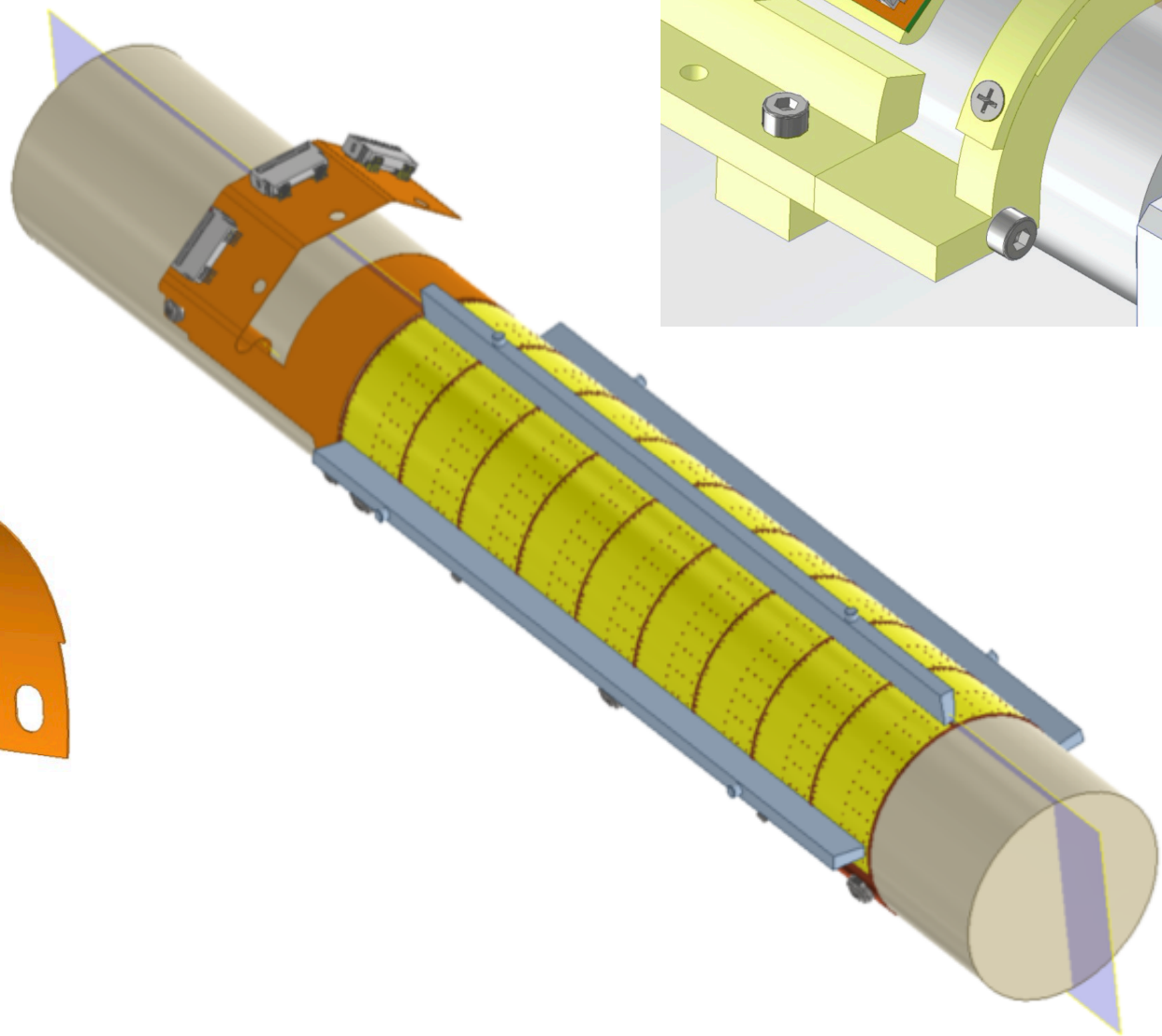
The present mandril holds a mock-up of the bended super-ALPIDE

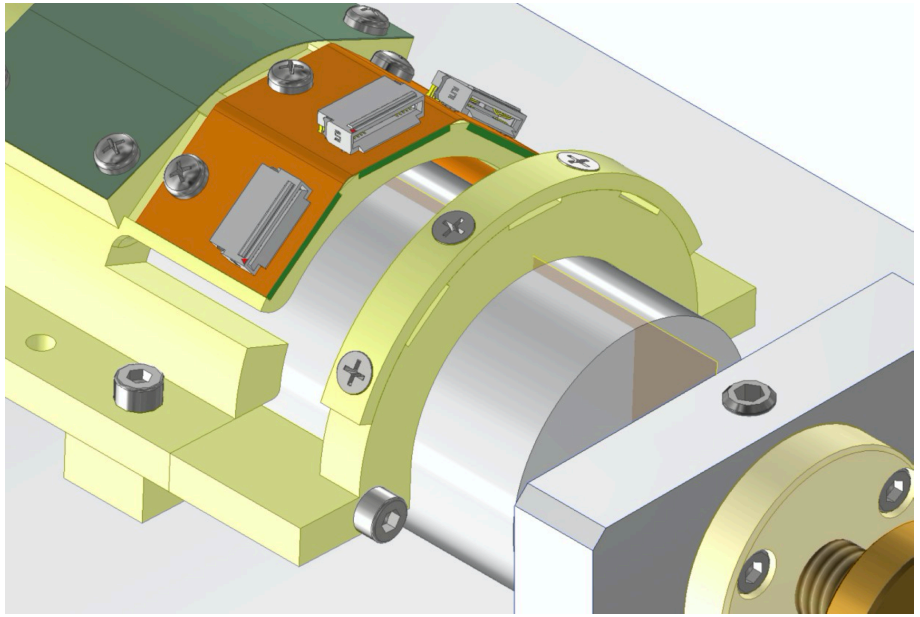
Super-ALPIDE setup

Edge-FPC

- Prototype of the final detector FPC
- Designed and integrated in Bari
- Under production
- Continue design toward next generation of large-area chips in 2022



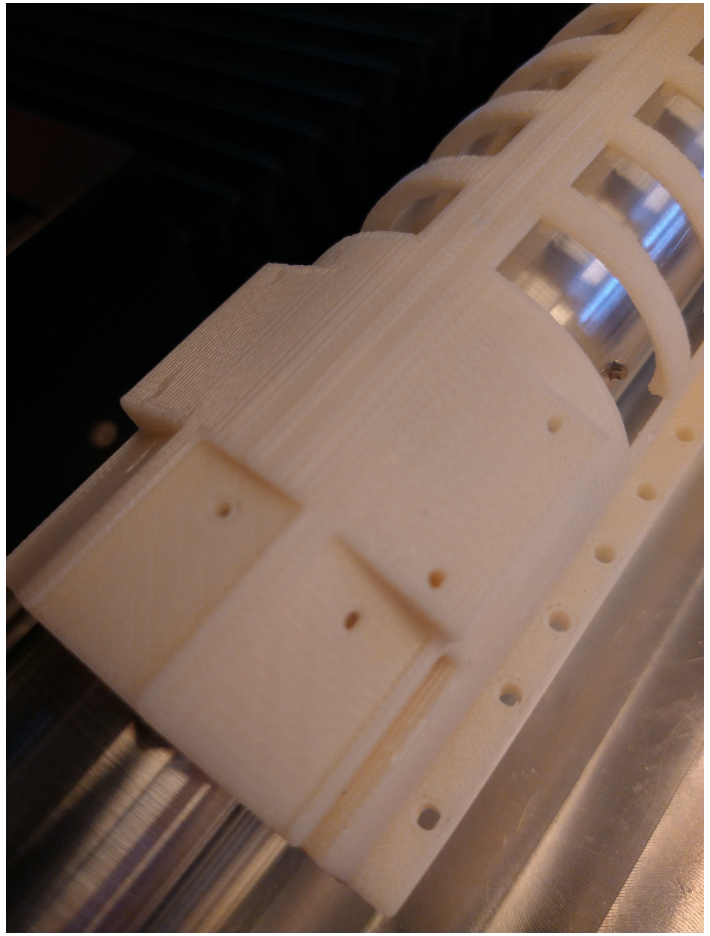


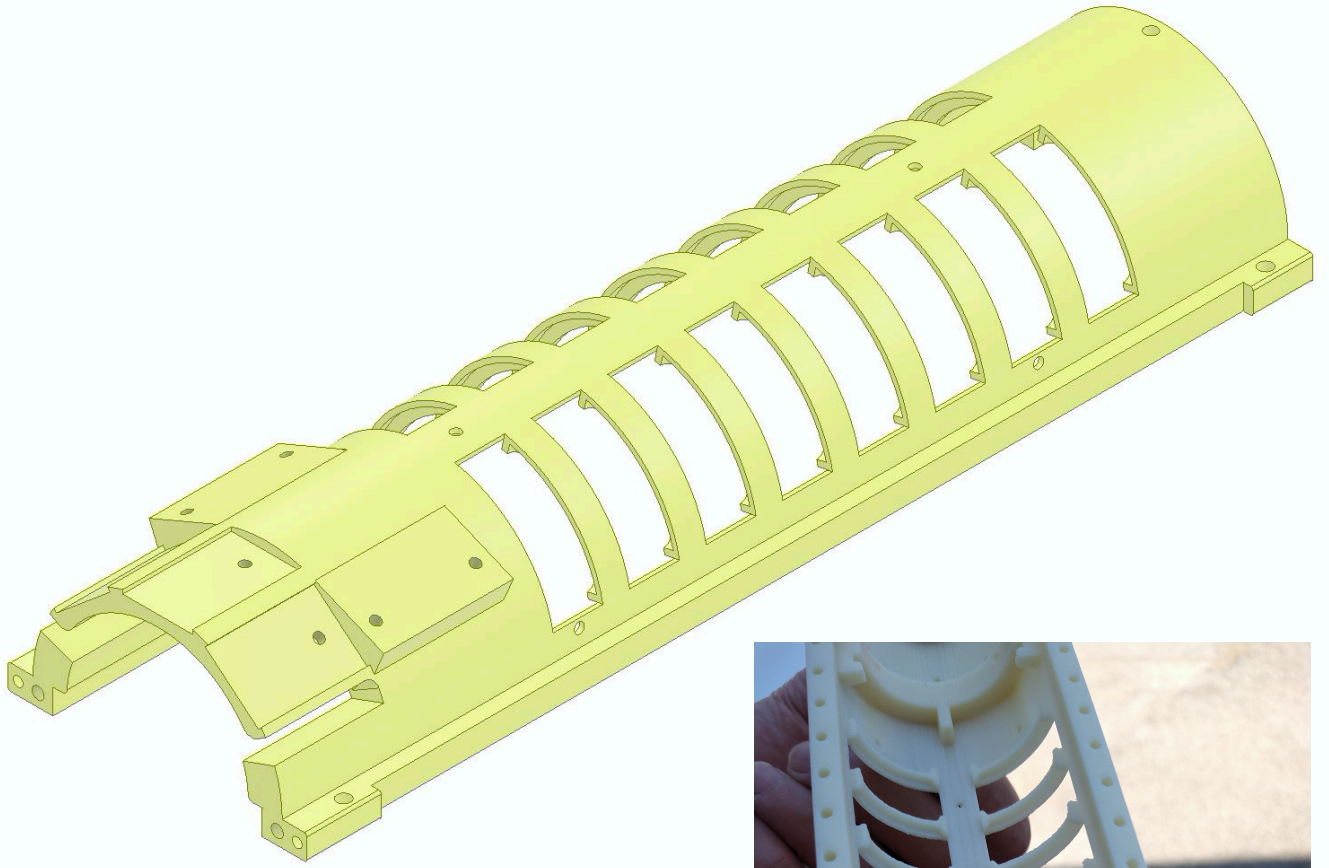


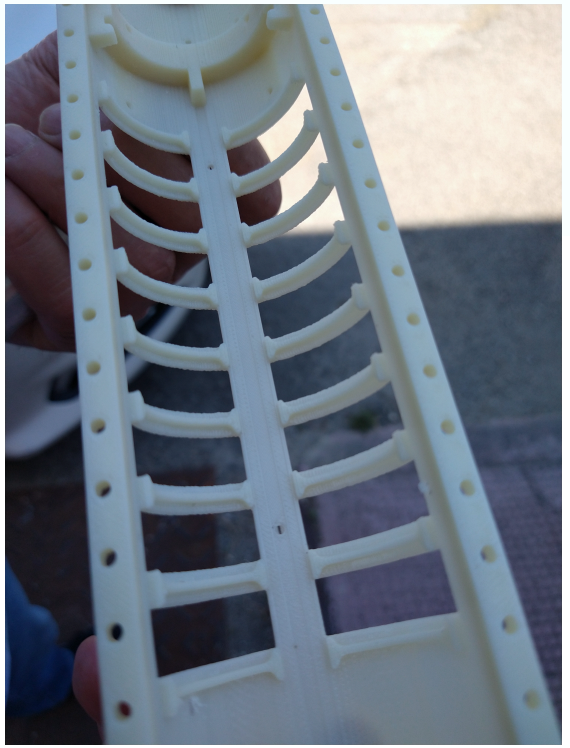
Super-ALPIDE setup

Exoskeleton

- First version designed by Magnus Mager
- Design finalization in Bari
  - edge-FPC integration
  - Bonding machine compatibility

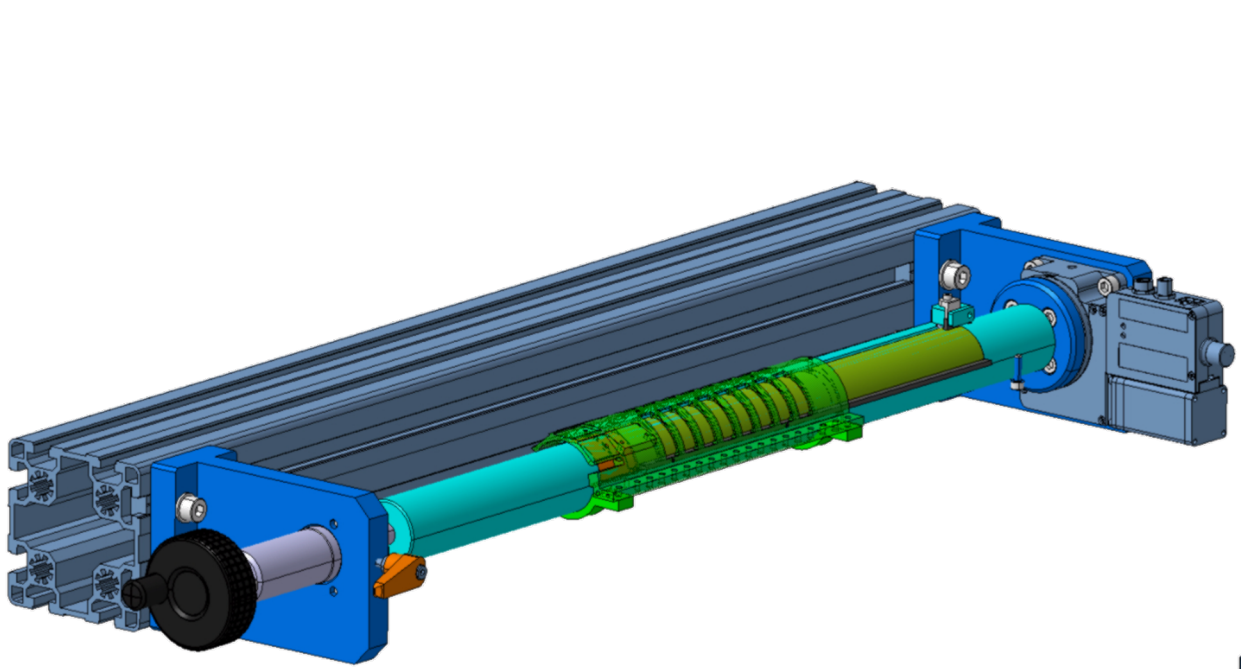


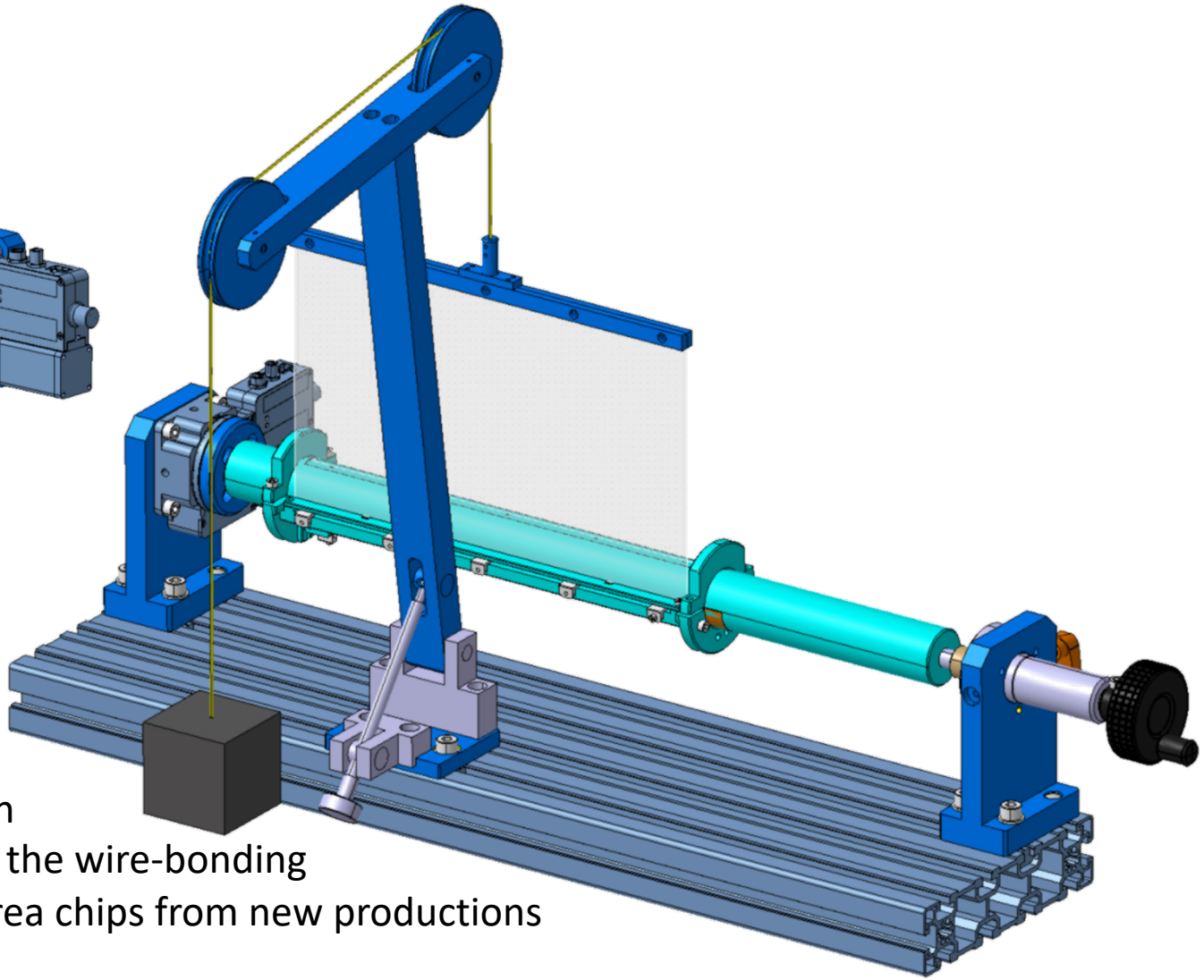




Super-ALPIDE setup - Bending tools

- Being designed at CERN
- Integration with the other components (exoskeleton and FPCs) in collaboration with Bari
- Next: full setup for complete super-ALPIDE assembly in Bari

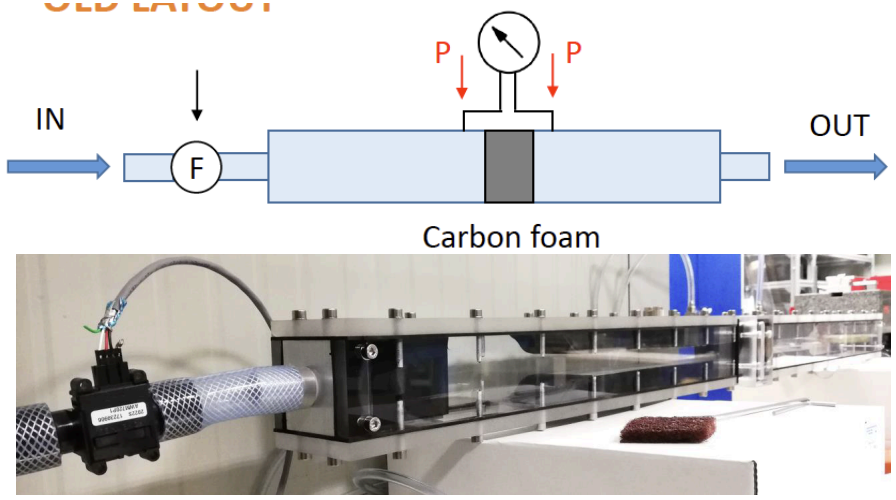


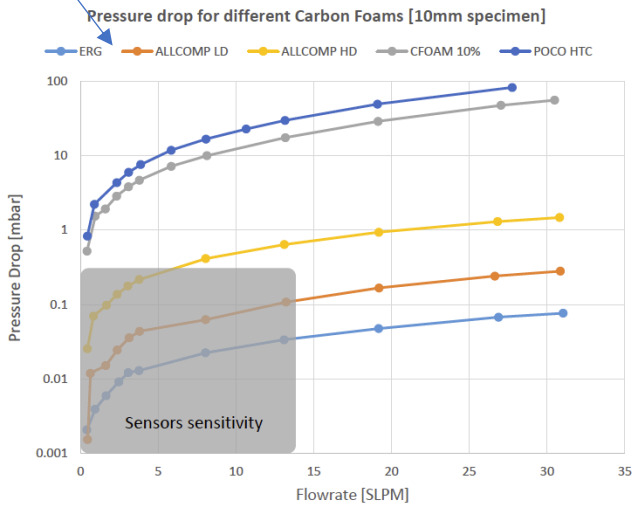


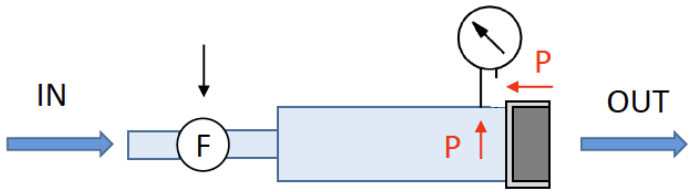
The activity on the design of the edge FPC, its integration with the bending and assembly procedure of large area chips, and the wire-bonding procedure will be the focus of next year (2022), using large area chips from new productions

Caratterizzazione proprietà Carbon Foam (CF)

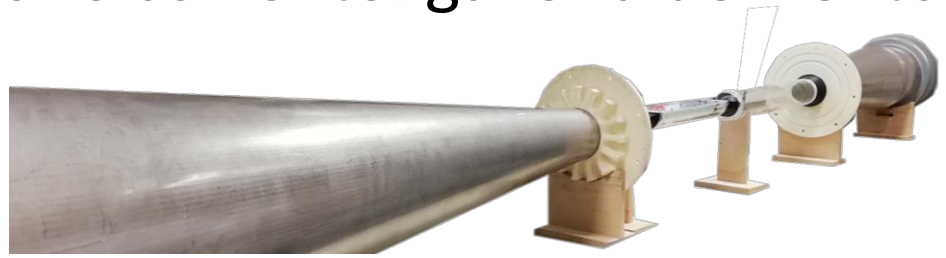
- Pressure drop test
  - Diversi layout provati nel 2021
  - Misure su diversi tipi di CF



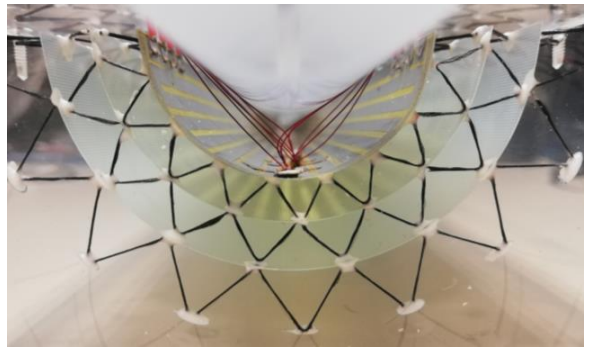




- Versione corrente: galleria del vento



L0 equipped with 3 PT1000 temperature sensors



Studio del raffreddamento a valle del primo supporto (ring) in fibra di carbonio

2022: attività di simulazione ed ottimizzazione