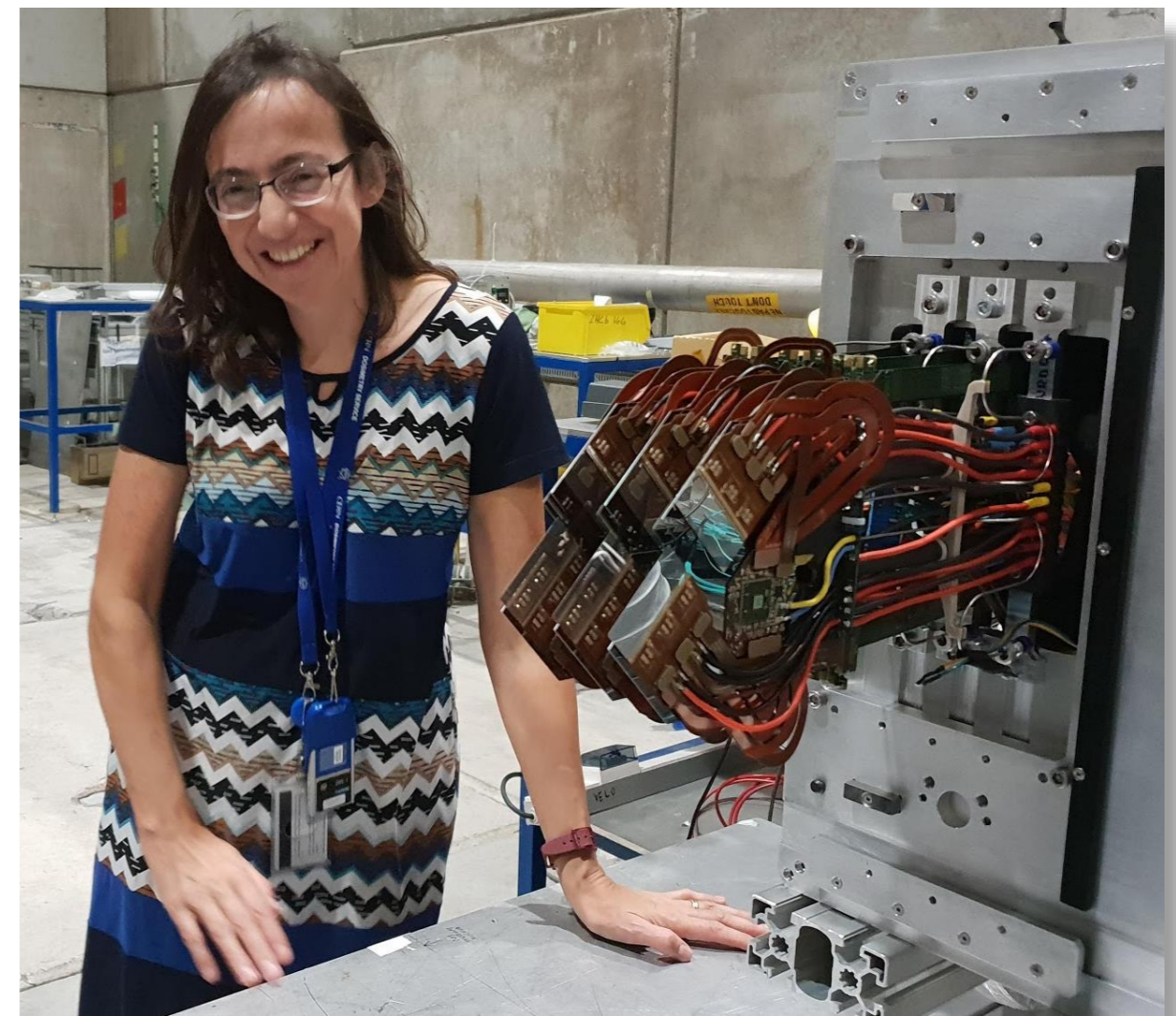
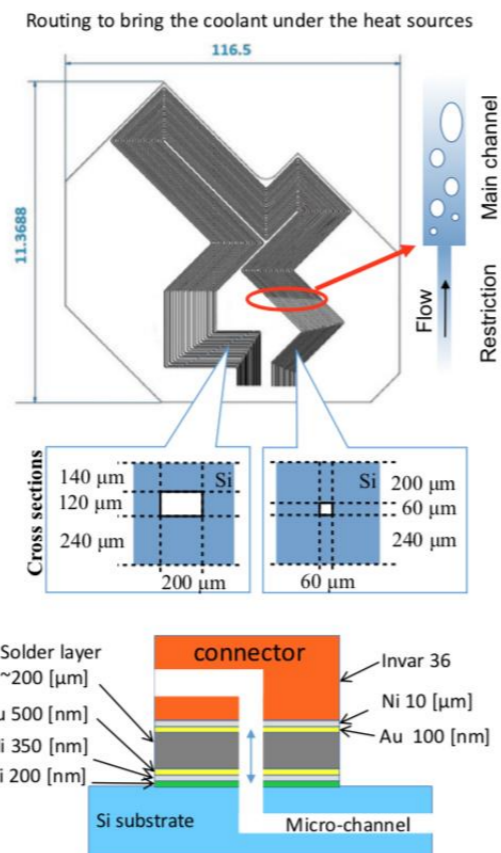
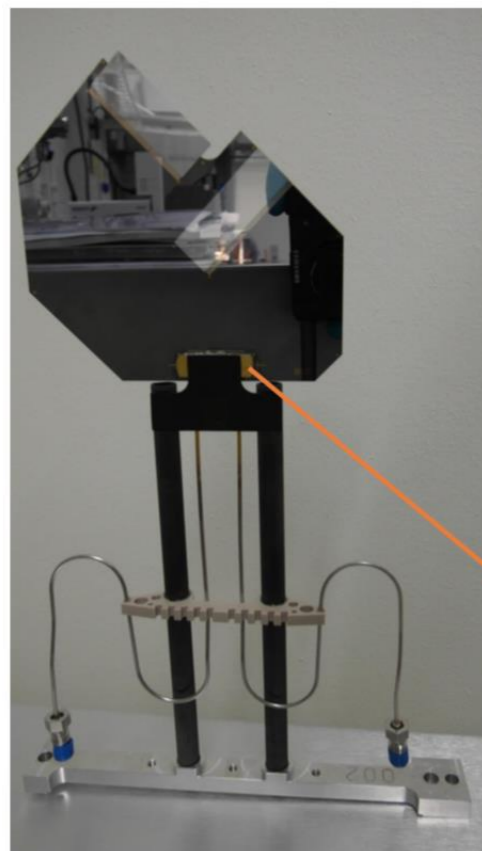


Support to the microchannel substrates

Alessandro Mapelli

Cooling Substrate



Test Beam at CERN, Oct. 2018

Oscar's poster at PIXEL 2018

Cooling Plates



- Currently 0.7 FTE on microchannel cooling activities for experiments (LHCb and NA62).
- Design, fabrication (at EPFL) and characterisation (at CERN) of prototype cooling plates.
- Participation to the preparation of the Call for Tender from and the Procurement Order.
- Cooling plates design and layout files
 - Conversion of the cooling plates layout in .gds format and submission to CEA-Leti for the photolithography masks.
 - Conversion of the 2D layout files in 3D models and integration in CATIA's LHCb environment.
 - <https://edms.cern.ch/document/1893975>
- Technical contact for the production of the cooling plates at CEA-Leti.
 - Organisation of weekly meetings with CEA-Leti for regular follow-up of manufacturing.
 - QA/QC of cooling plates during manufacturing at CEA-Leti (Inspection of etching profiles and wafer bonding quality) and after delivery at CERN (metrology of cooling plates and destructive testing of dedicated samples). Pressure testing results included in the Velo database.
 - LASER dicing at CERN of *prototype substrates* and *production cooling plates* (due to issues with plasma dicing quality at CEA-Leti's sub-contractor).
- Fabrication of thermo-mechanical prototypes, pad chips and sensors at EPFL (during prototyping phase, new devices might be needed for assembly testing).

Microchannel Substrates



- Metrology of the cooling plates soldered to the fluidic connectors with Keyence at CERN.
- Soldering optimisation of metallic connectors to silicon cooling plates.
- Conversion of CAD files and 3D-printing at CERN of jigs for modules assembly.
- Participation to two weekly meetings
 - Cooling & Mechanics
 - Module 0
- Invited to Velo Module EDR, PRR and Velo Upgrade II workshop (<https://indico.cern.ch/event/681201/>)