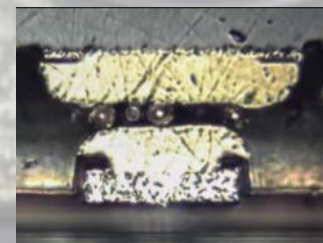
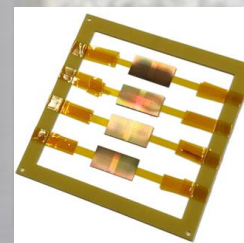
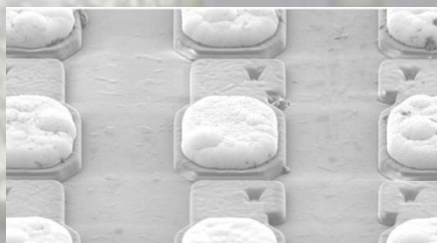
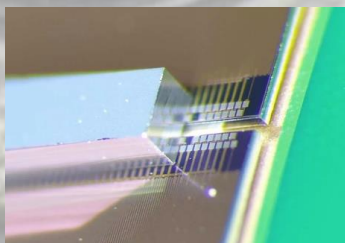
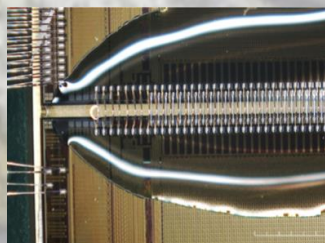


# WP 1.3 – Module Development Introduction

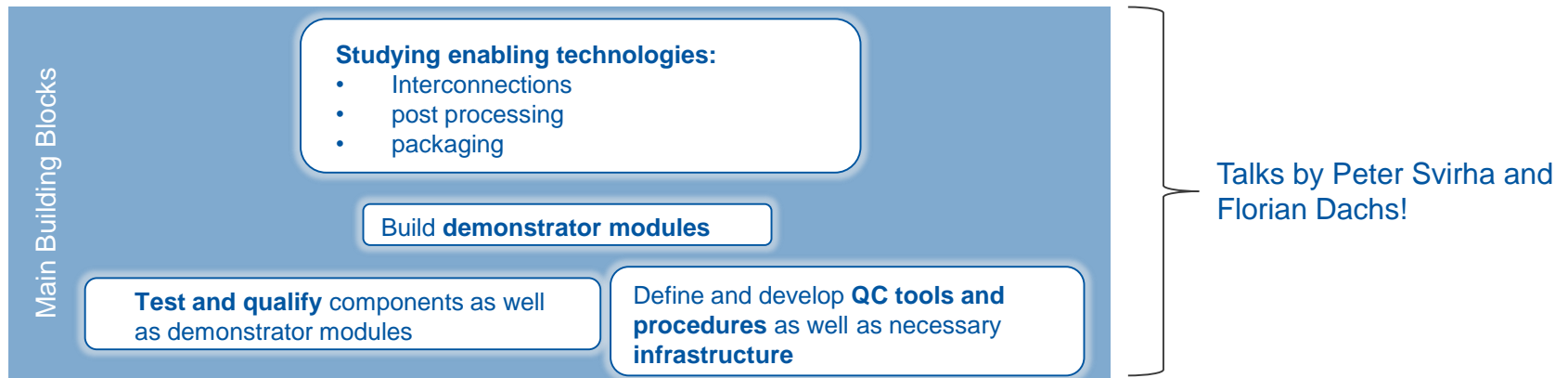
Petra Riedler, Dominik Dannheim



# WP 1.3 Activities

WP 1.3 focusses on the **study and development of new modules for hybrid and CMOS pixel detectors**.

- Using existing chips, e.g. ALPIDE, MALTA1, MALTA 2, Timepix3 or CLICpix2 and sensors.
- Collaborating with the other work packages, especially those on silicon detectors.
- Closely working with industrial partners to develop and test technologies & processes (e.g. DISCO, Dexerials, Conpart, IZM, Optim or PacTech)
- Closely collaborating with services at CERN, e.g. Bondlab, QARTlab, BE-CEM-EPR or EN-MME.



WP 1.3 holds **monthly meetings** (<https://indico.cern.ch/category/11714/>) which provide updates on the different activities as well as a platform for exchange and discussion.

We invite **experts for focus talks** on specific technologies, e.g.:

- Talk on Ni/Au plating processes by Rui de Oliveira
- Talk on encapsulation studies and irradiation for the ATLAS phase II pixel upgrade by Susanne Kuehn
- Talk on parylene coating experience in LHCb by Paula Collins

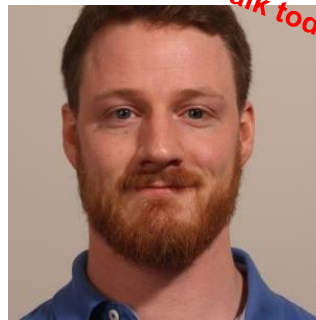
to kick-off developments and provide a summary of present experience.

# WP 1.3 Team

- The WP 1.3 team is very diverse with contributions from **CERN staff, CERN users, students and fellows** working on silicon module development.
- Hiring of 2 doctoral students (with 50% funding) and 2 fellows on WP 1.3 funds:



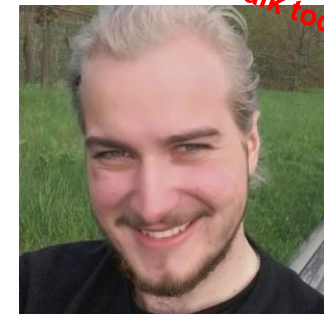
**Milou van Rijnbach**  
(DOCT, Oct. 2020,  
WP 1.3/ATLAS)



**Florian Dachs**  
(FELL, Oct. 2020)



**Julian Weick** (WP 1.3/DT)  
(DOCT, Apr. 2021)



**Peter Svihra**  
(FELL, Oct. 2021)

## Former fellows and students:

- Mateus Vincente Barreto Pinto (FELL, now at University of Geneva)
- Roberto Cardella (PJAS, now University of Geneva)
- Morag Williams (DOCT, now ESRF)



**Upcoming:** Technical student to study and optimize Ni/Au plating for single dies for interconnection studies; program defined together with Rui de Oliveira (EP-DT-FS)

We invite presentations and collaborate with **projects where we share a common interest in developments**, such as **AIDAinnova**, **μPET** (Univ. of Geneva), **LPNHC**, **LUXE** (CALICE, DESY) or **Pixel Chamber** (INFN/Univ. Cagliari and CERN-ALICE).

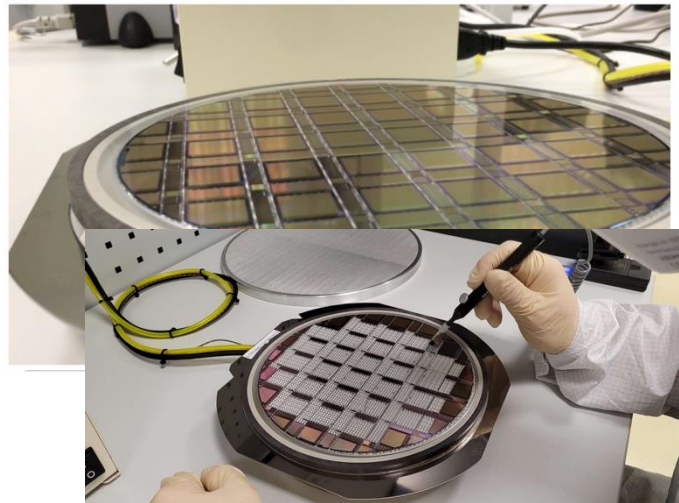


# WP 1.3 Infrastructure

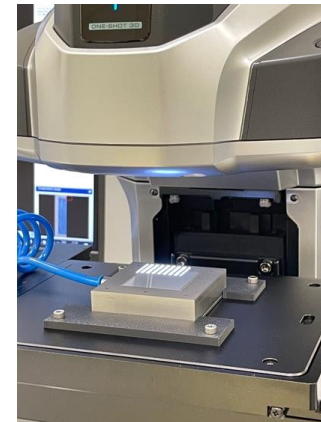
- **Dedicated corner in the DSF cleanroom** (and SAS) for common equipment.
- All **equipment is listed on the WP 1.3 EP R&D web-page** with instructions how to book time and access. A contact person for each equipment will help with setting up and using the tools.
- Cost sharing with projects/experiment using synergies and common needs.
- We also provide common items such as gel-paks, wafer trays for WP 1.3 activities.



Plasma Cleaner



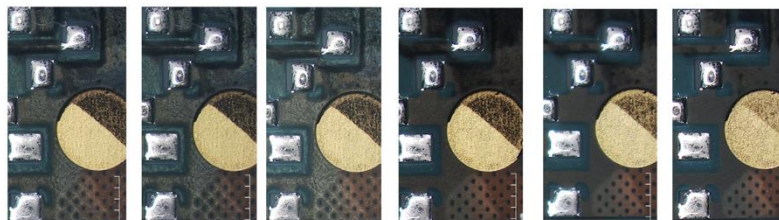
Die Ejector



Metrology System

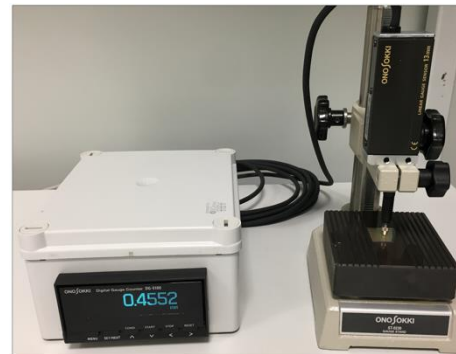


Diamond scribe  
(being delivered)



Before Plasma 1m cleaning 2m cleaning 3m cleaning 5m cleaning 10m cleaning

Thickness Probe



Flip chip bonder

