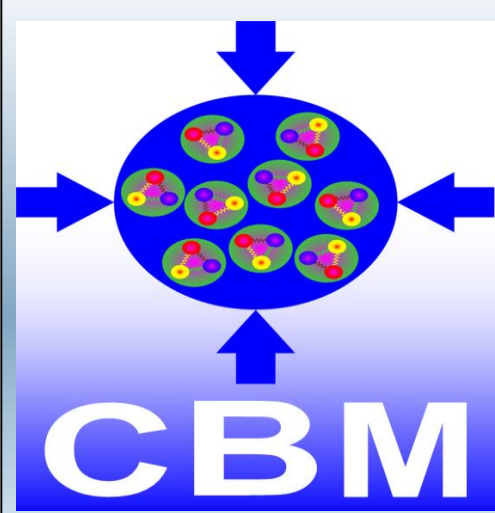
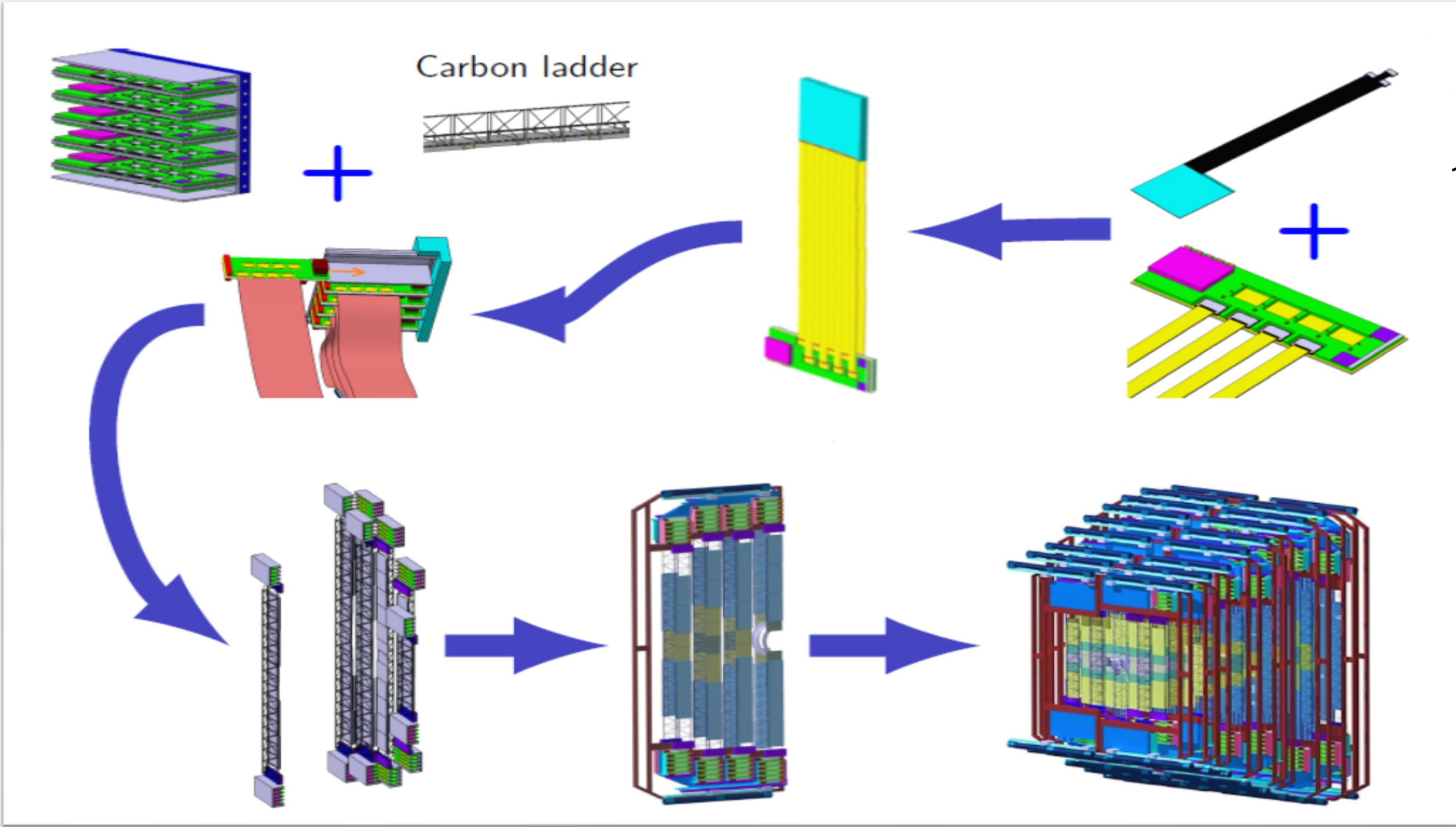


STS-XYTERv2 AND PROTOTYPE FEB-B TESTS FOR THE CBM SILICON TRACKING SYSTEM



Merve Dogan^{1,2} for the CBM collaboration

¹Istanbul University, Istanbul
²GSI, Darmstadt



MODULES IN THE SILICON TRACKING SYSTEM OF THE CBM EXPERIMENT AT FAIR

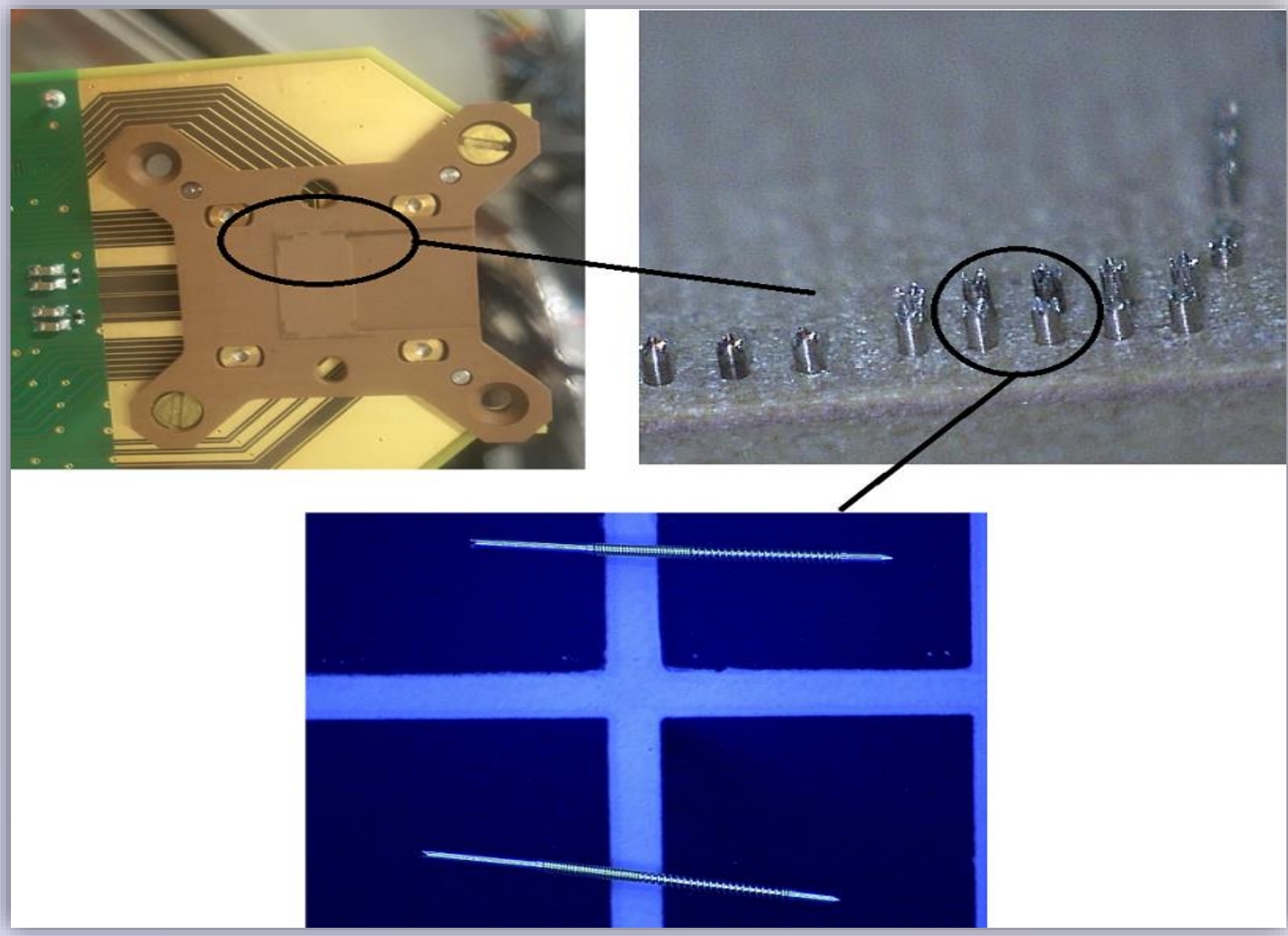
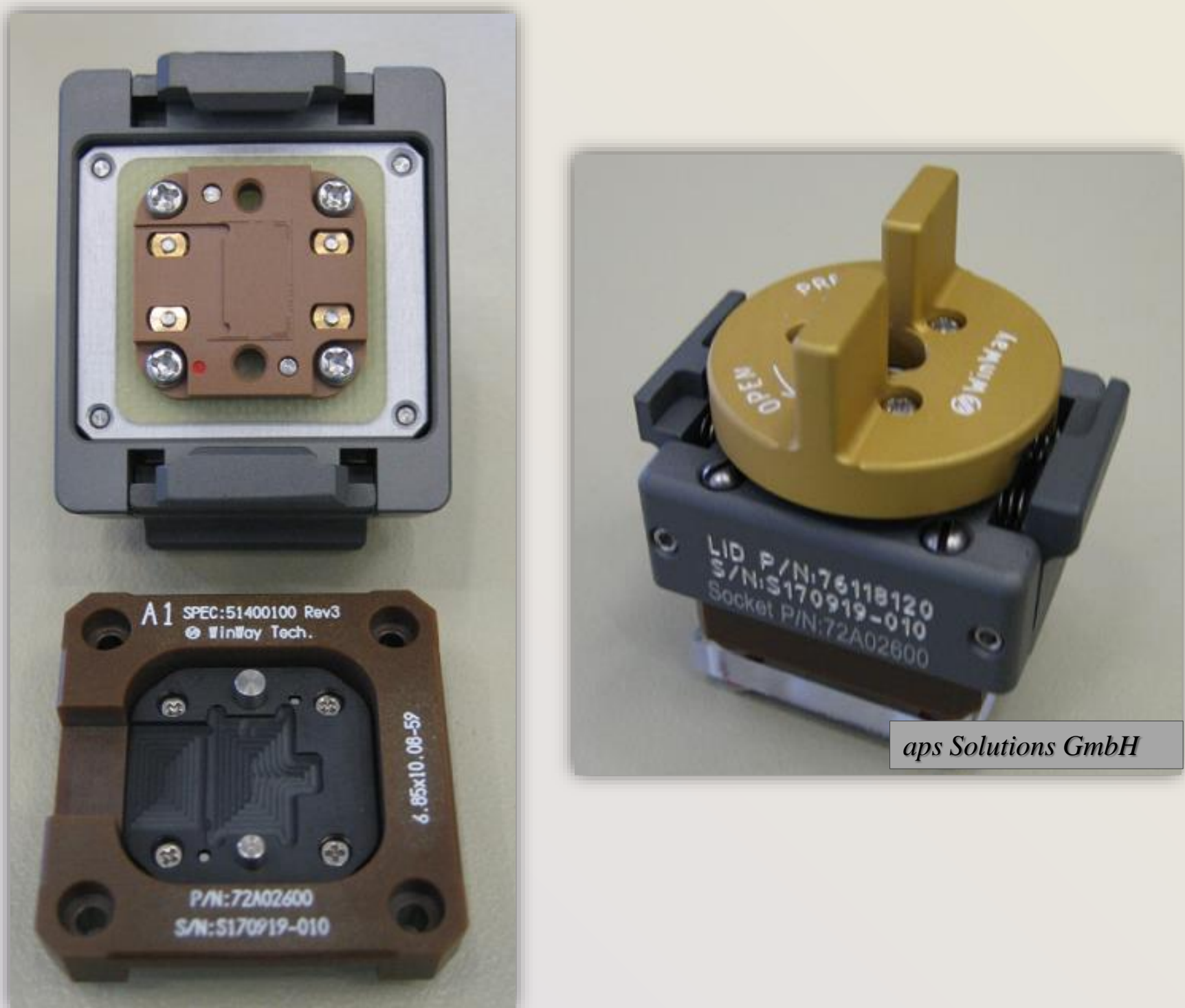
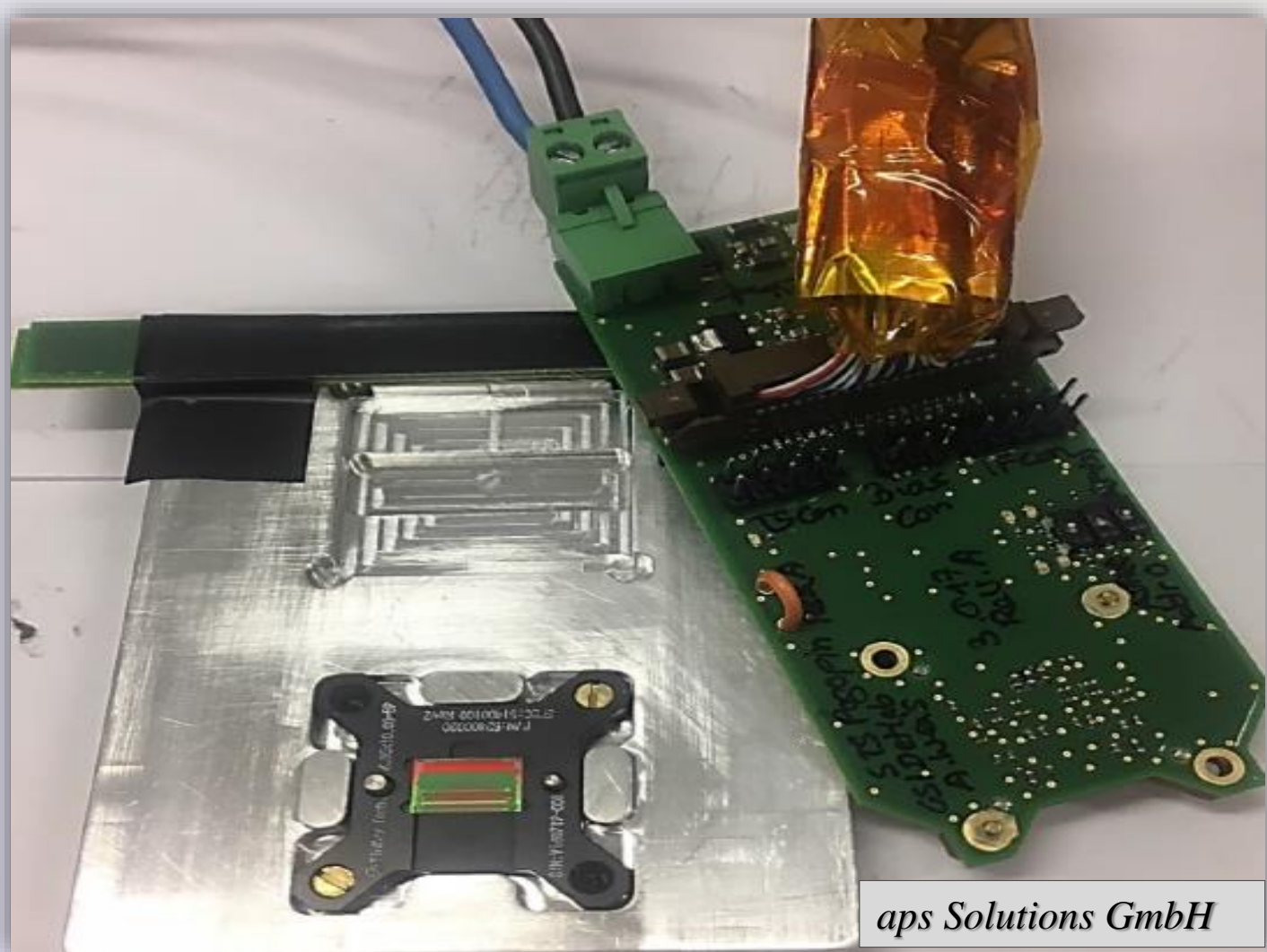
- ❖ 8 tracking station between the angle $2.5^\circ \leq \Theta \leq 25^\circ$
- ❖ Self-triggering electronics
- ❖ double-sided silicon microstrip sensors
- ❖ hit spatial resolution $\approx 25 \mu\text{m}$
- ❖ $\Delta p/p \approx 1.8\%$
- ❖ Inside 1 Tm dipole magnet
- ❖ hit reconstruction efficiency $> 98\%$

STS-XYTERv2 AND FEB-B TESTS

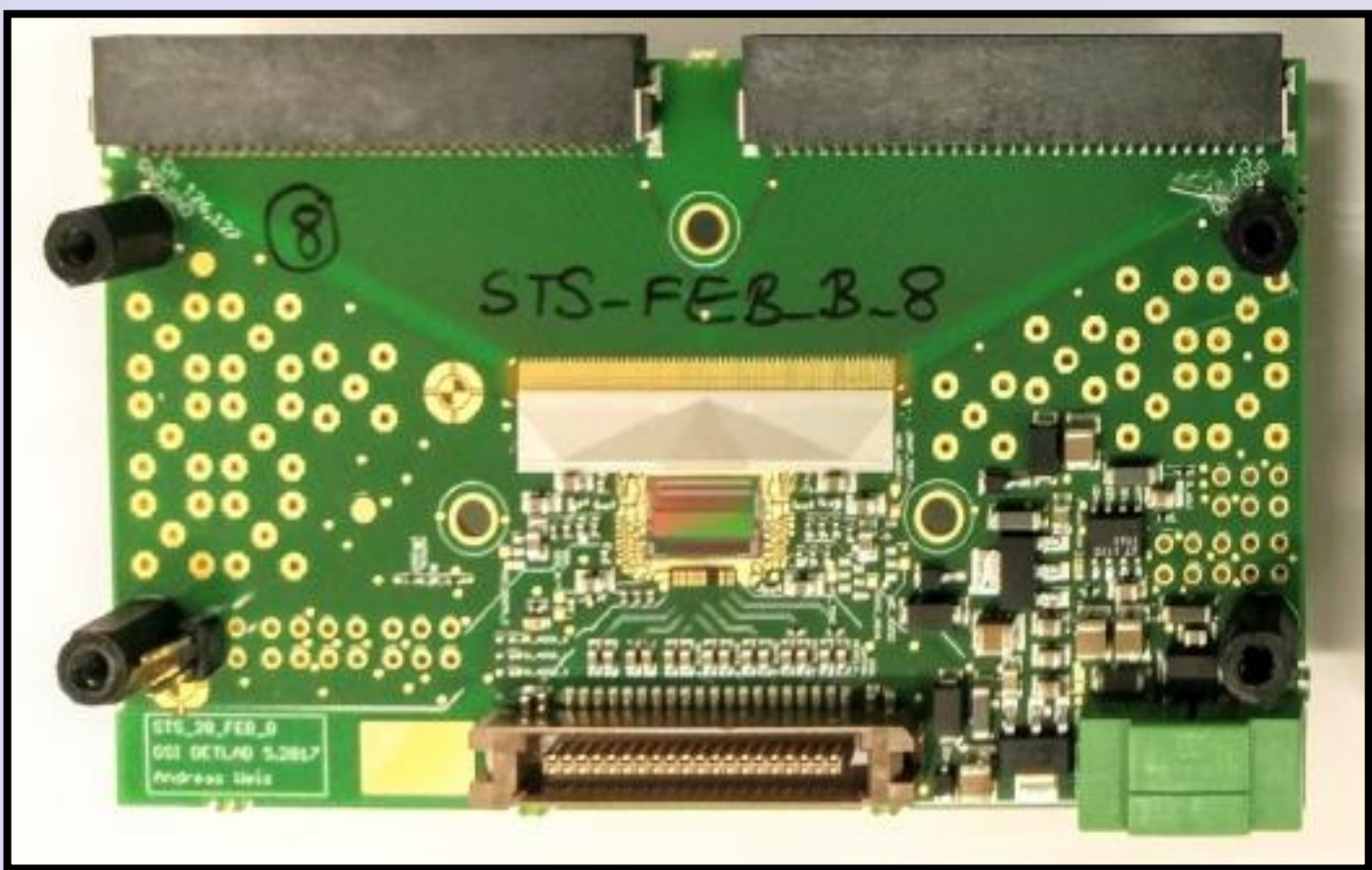
Test and QA of STS-XYTERv2 for module production and FEB assembly

Old Prototype test station

New Prototype test station



- ❖ Quality assurance tests were done for 162 individual ASICs
- ❖ Current values, reference voltage values, analog responses, the dynamic range of the ADC for electron and holes and following hit informations were obtained



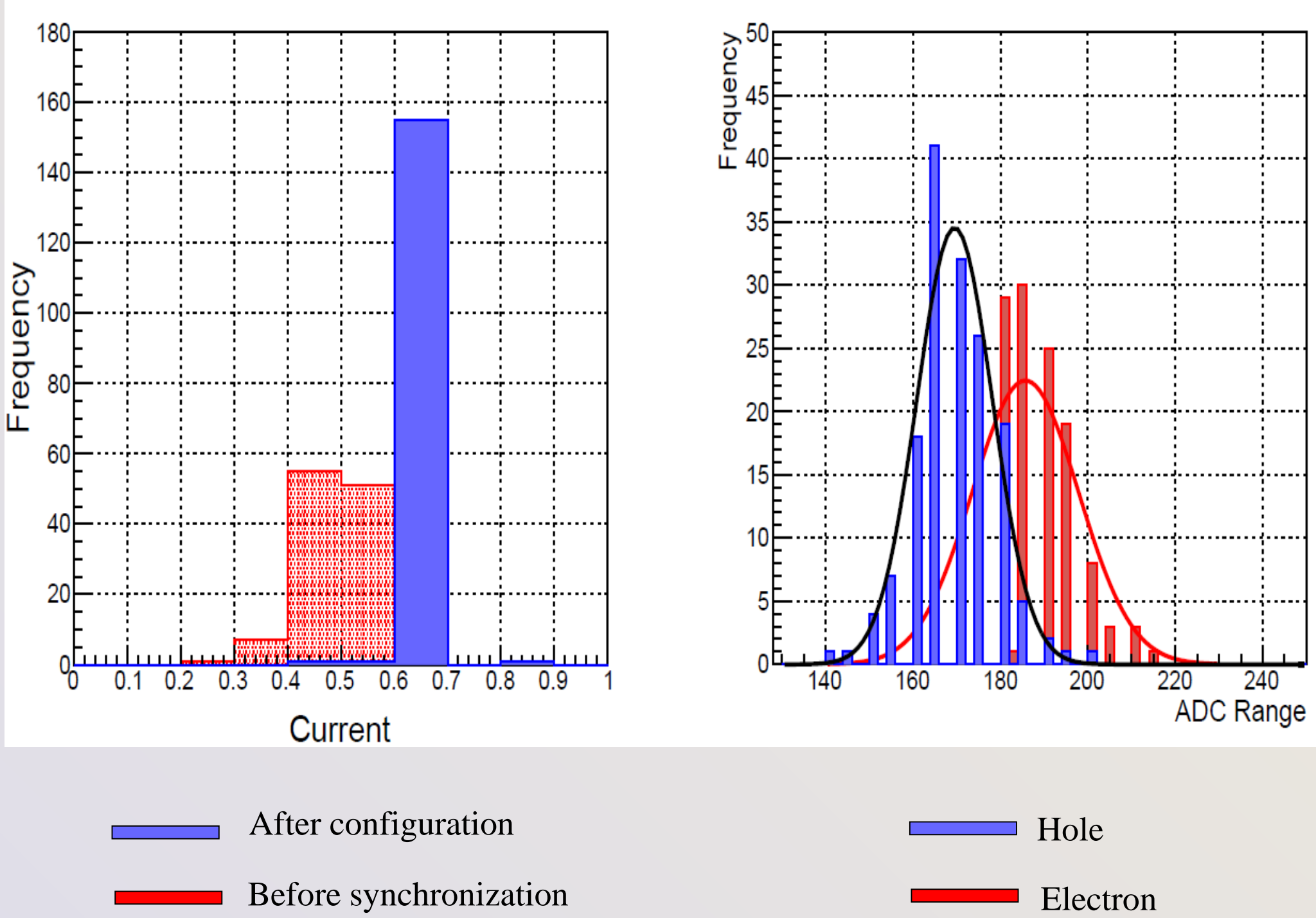
Prototype FEB-B

- ❖ ASICs that have shown good quality were wire bonded to the prototype FEB-B
- ❖ FEBs were also tested with the same protocol
- ❖ In total 138 FEBs out of 146 have passed the test

FEB8



STS-XYTERv2 TEST RESULTS



	Electrons	Holes
ADC Ranges(Register Value Units)	185	169
ADC Range (mV)	92.5	84.5
Amplifier Gain (ADC units/mV)	0.33	0.37
σ	12.2	8.4

FEB-B TEST RESULTS

Total Number of Tested FEBs	146
Number of FEBs with problematic performance	8
- very high current	2
- No analog response	1
- No fast discriminator response	1
- One or more broken channel	4

- ❖ The yield is 91%, a rather typical value in ASIC design and production
- ❖ At least an extra of 9% needs to be produced to accommodate the yield

Looking forward to mSTS in mCBM:
❖ Approximately 250 ASICs need to be tested at the different stages of the module assembly.