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# Tomography investigation of ReBCO stacks

C. Accettura

With contributions of M. Celuch

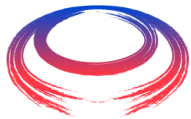
Final Cooling Solenoid Meeting

<https://indico.cern.ch/event/1390334/>

12/04/2024, CERN

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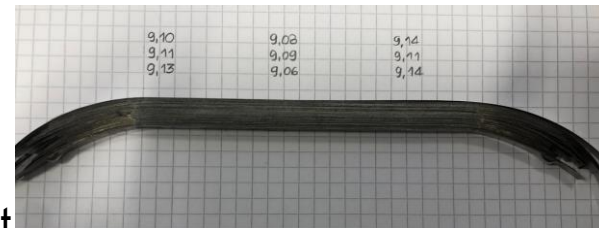


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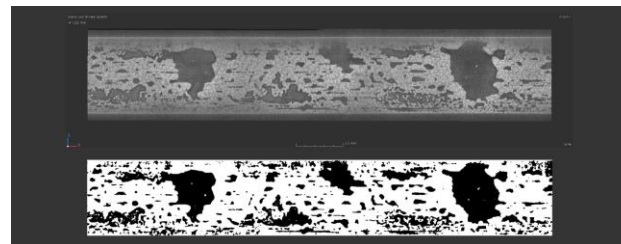
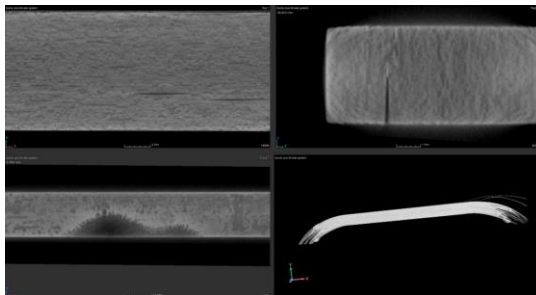
# Summary of past results



- Sample 1: THEVA tape, 100 stacks, solder made of Tin-Lead,  $T_{max} \sim 200^{\circ}\text{C}$  in air
- Visible delamination
- High quantity of residual solder from the thickness measurement
- Porosity detected in the tomography
- The range of calculated fill factor values made on 3 random sections was from 67 to 71%.

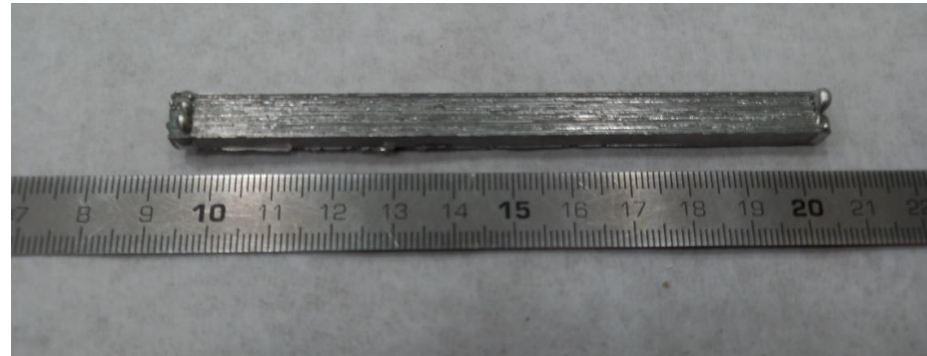


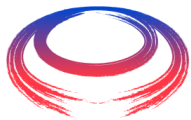
	Position		
	1	2	3
Soldering-max [mm]	2.81	2.78	2.83
Soldering-min [mm]	0.21	0.18	0.23



# New production process

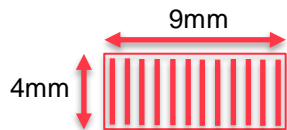
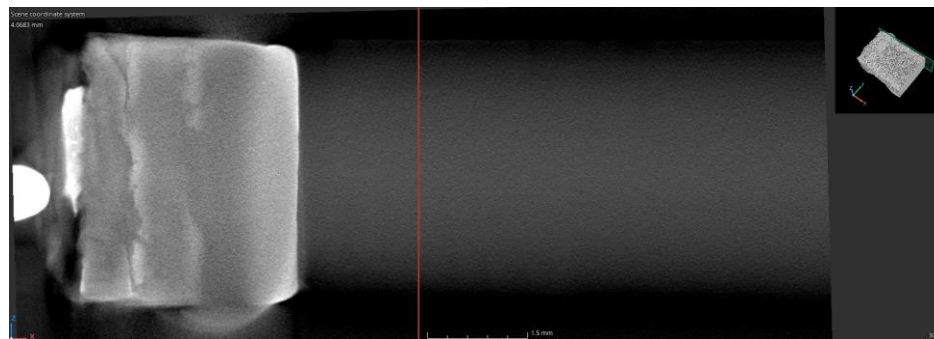
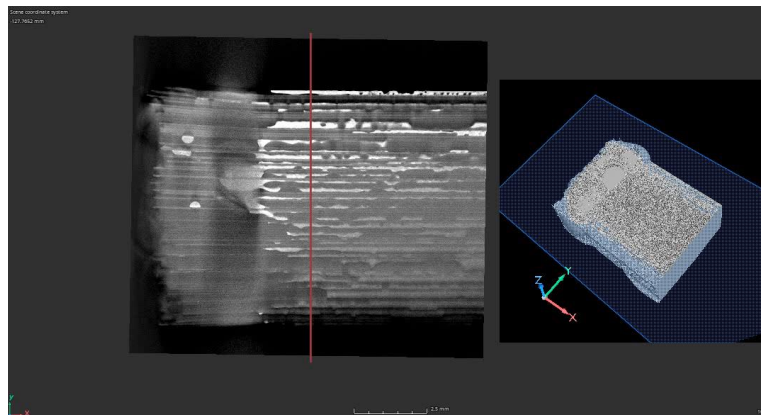
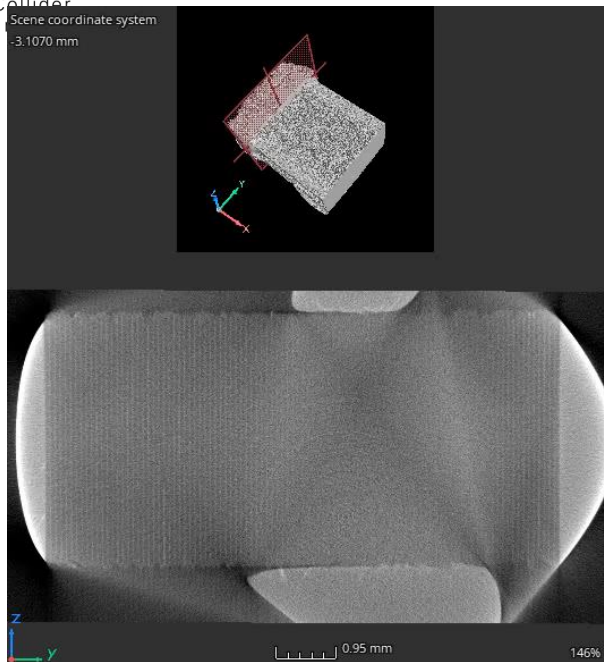
- In order to minimize the porosity, the stacks is heated under vacuum



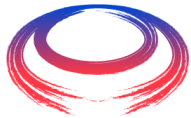


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# Tomography of new sample



C. Accettura et al., Final Cooling Solenoid Meeting, 12/04/2024

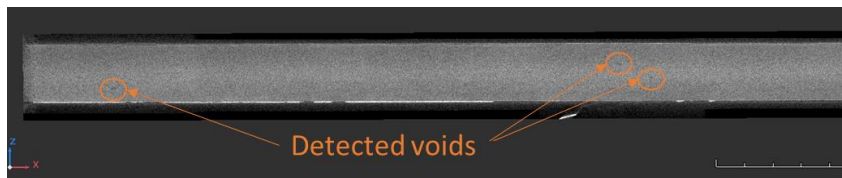


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# Tomography of new sample-Conclusions



- The soldered interfaces are almost completely filled, with only small voids detected in some layers.



Complete report:

<https://edms.cern.ch/document/3061647/1>



# Next steps

- Define procedure for the production
- Production of new stacks (which tapes?)
- Tomography to check reproducibility
- Thermo-mechanical tests