This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under GA No 101004730.

Task 9.2 Cavity Production @ INFN PICCOLI srl TORNERIA IN LASTRA METALLICA

iFAST 1st Annual meeting – CERN, May 2022

WP9 5th meeting

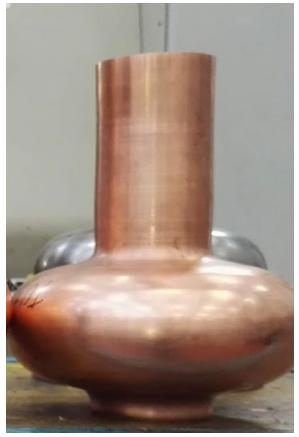
Cristian Pira

iFAST

Study in collaboration with

GOALS:

- Move cavity forming process from semi-automatic to fully automatic using CNC machine
- Study annealing temperature and reproducibility
- **Improve forming process**
- **Produce cavity substrates**



Seamless copper 1.3 GHz cavity shape for testing

MS38: First seamless copper 1.3 GHz cavity produced as substrate for the coating of the SC film (Report)	**M12**

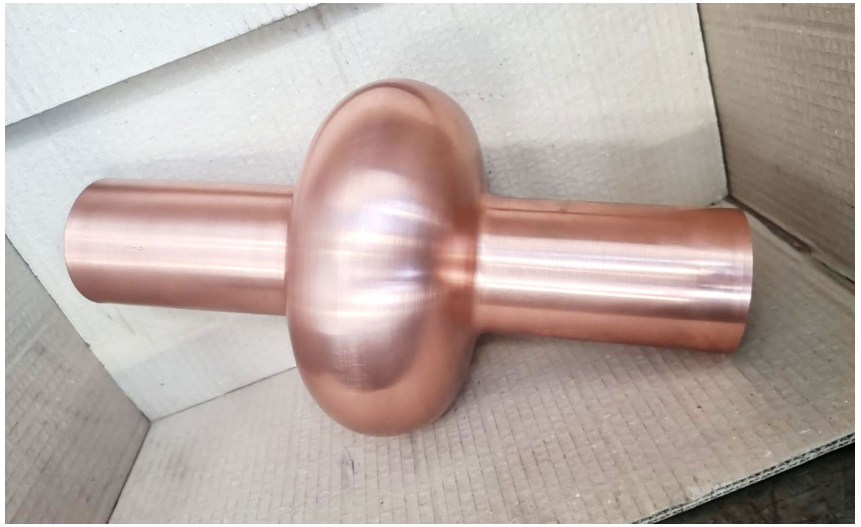
Advancements from last meeting

- Piccoli has been very busy, we only had a few days to continue with the project
- In May-June, there will be more time available
- Upgrade of the numerical control lathe which, however, required rewriting the cavity forming program

First full seamless cavity produced

Thursday 28 of April

Just in time...

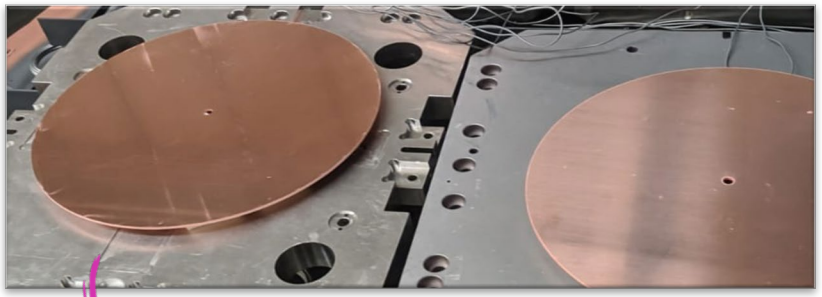


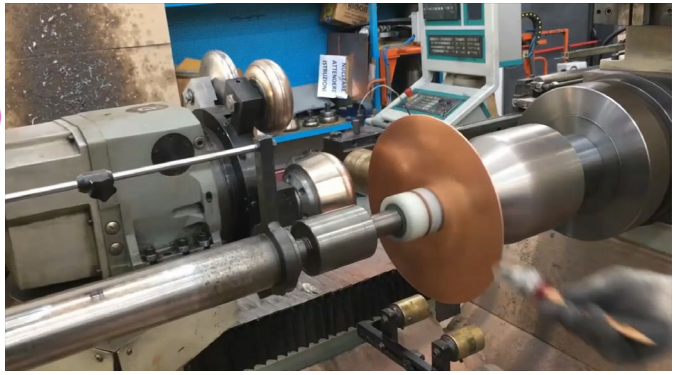
First seamless copper 1.3 GHz cavity produced
Courtesy to Davide Piccoli (Piccoli Srl)

MILESTONE ACHIEVED (Report in writing)

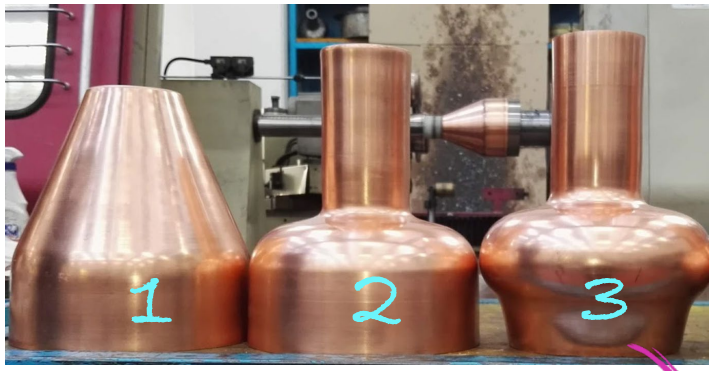
Seamless cavity forming process

A) Annealing @400 °C of Cu disk





B) Forming from Cu **disk**



At that point **intermediate annealing** possible

C) Flanges welding

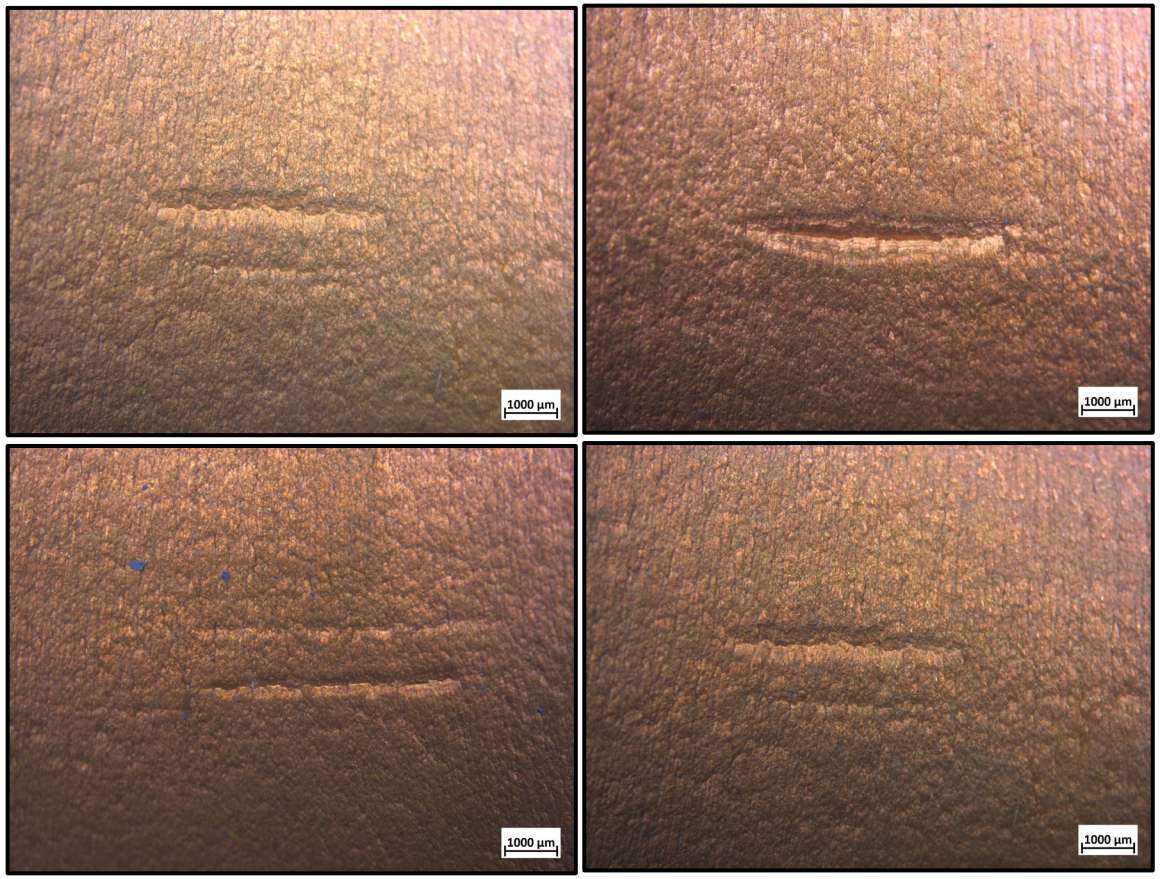
Plan A: PTI

Plan B: Jlab

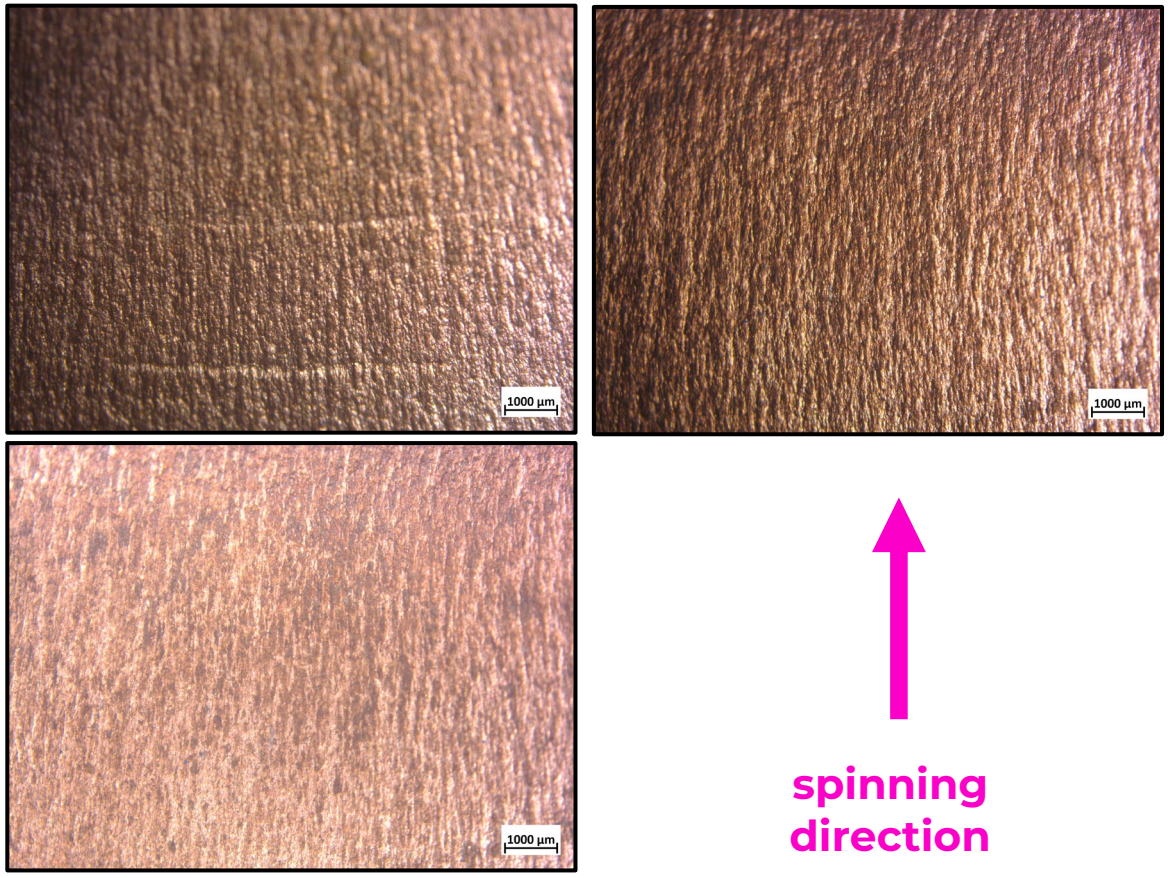
Plan C: Zanon, brazing?

Intermediate annealing reduce defects

1.1 no annealing (iris 2nd half cell)



2.1 intermediate annealing (iris 2nd half cell)

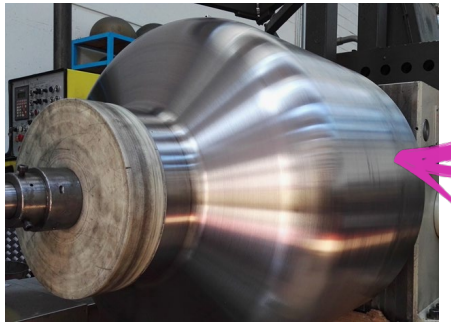


spinning direction

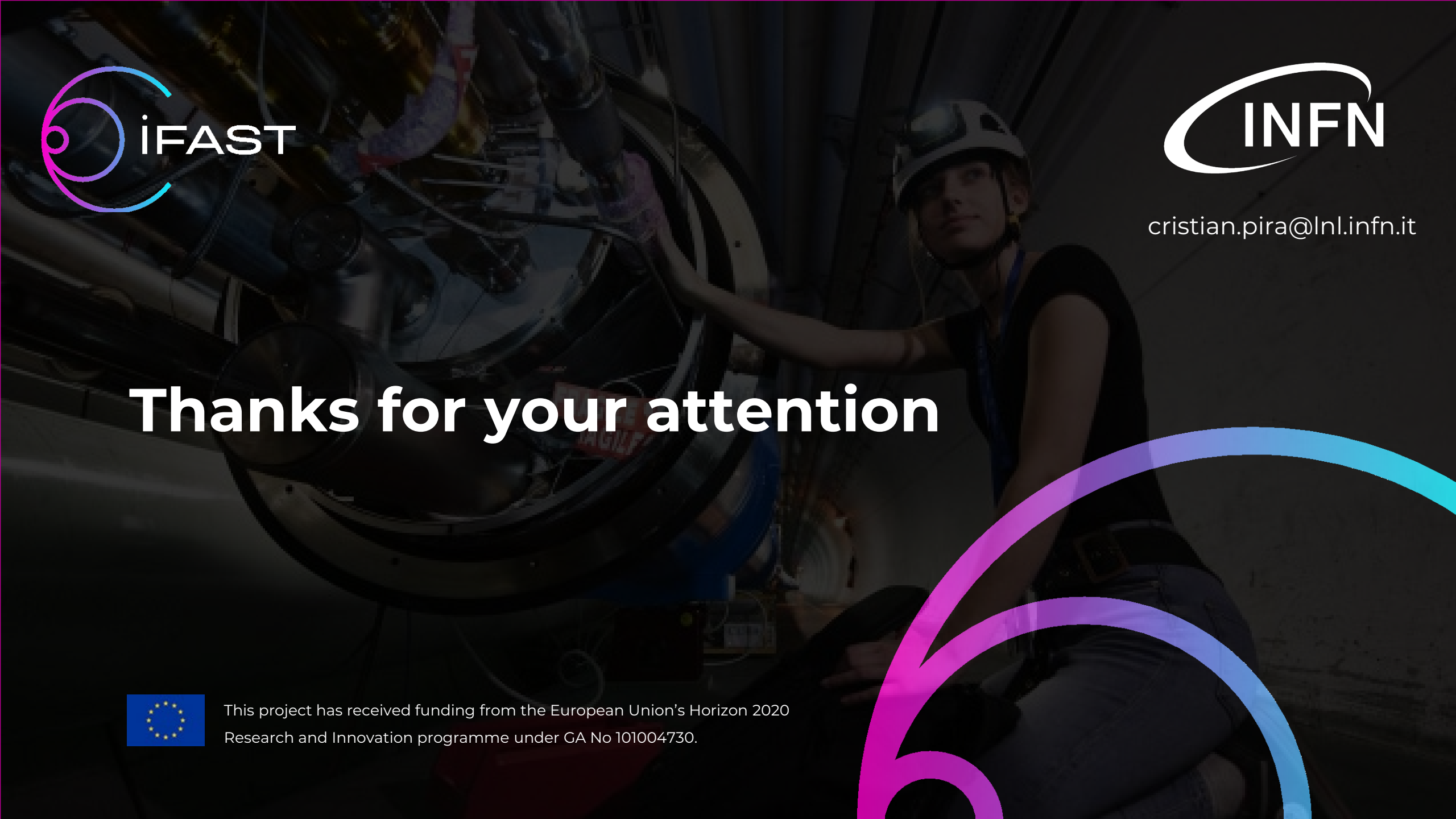
Future improvements

- Learning from 400 MHz spinning process

Deep drawing step



- New iron die in construction @Piccoli



Thanks for your attention

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