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

Task 9.3 Progress @ INFN

2nd iFAST WP9 meeting

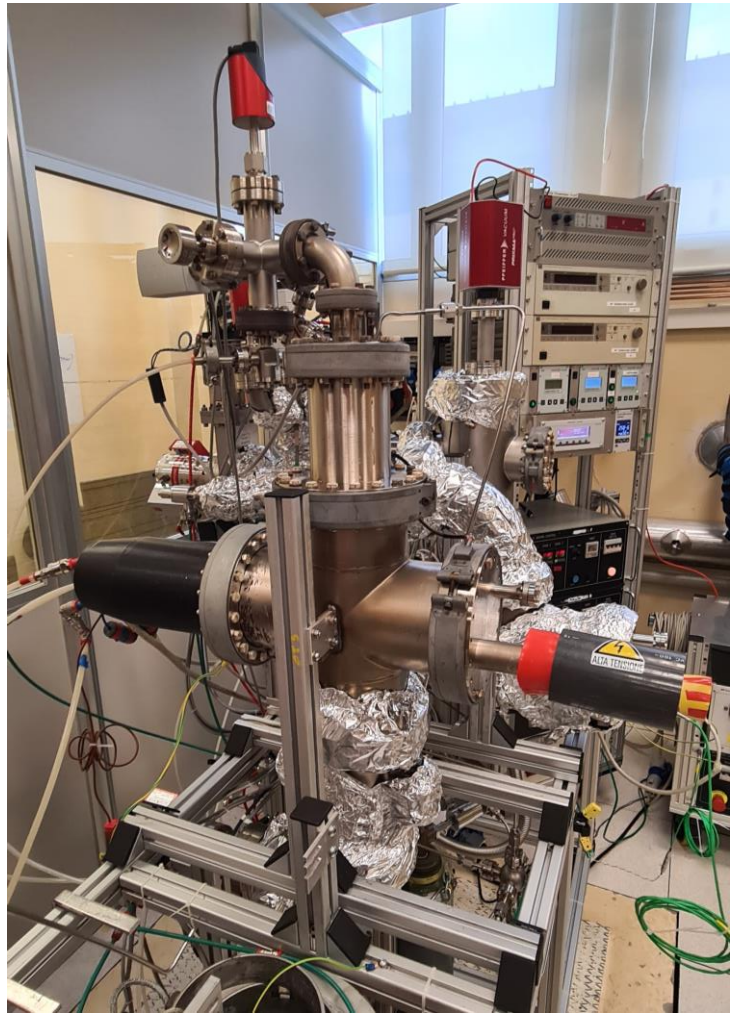
Vanessa Garcia Diaz

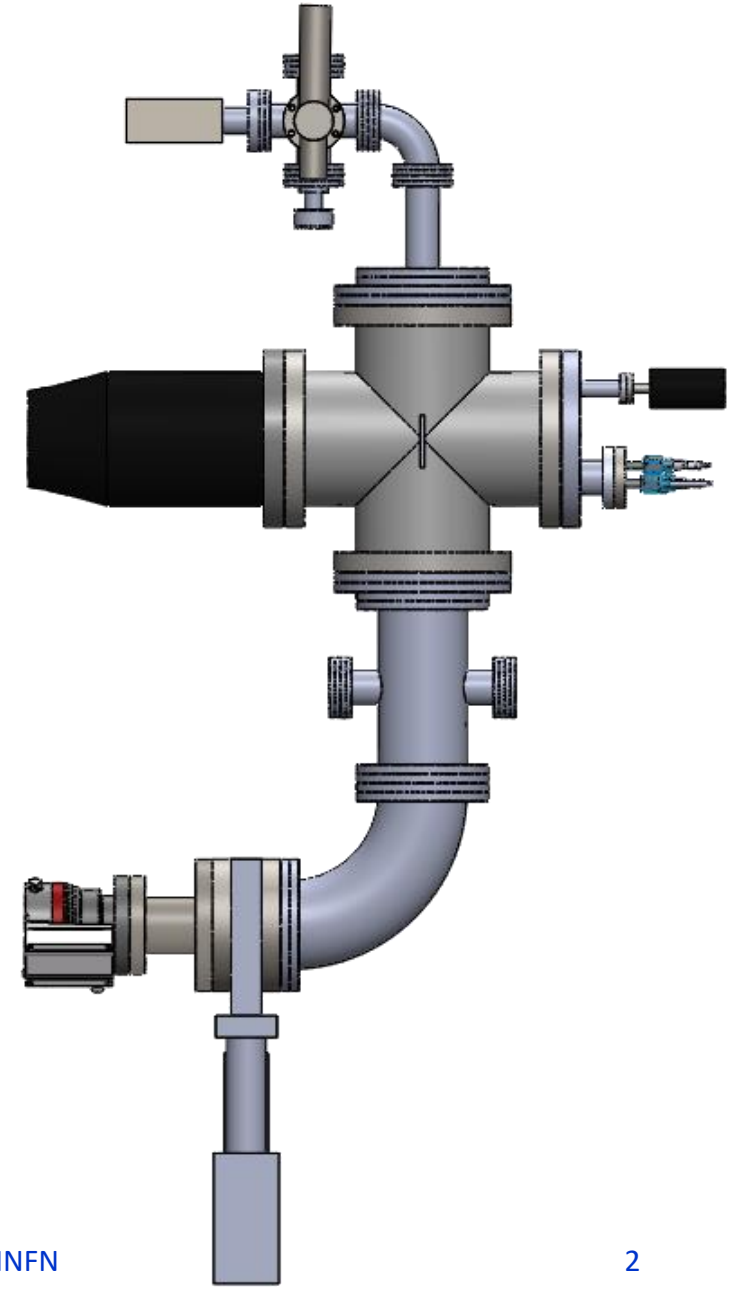
Cristian Pira

iFAST

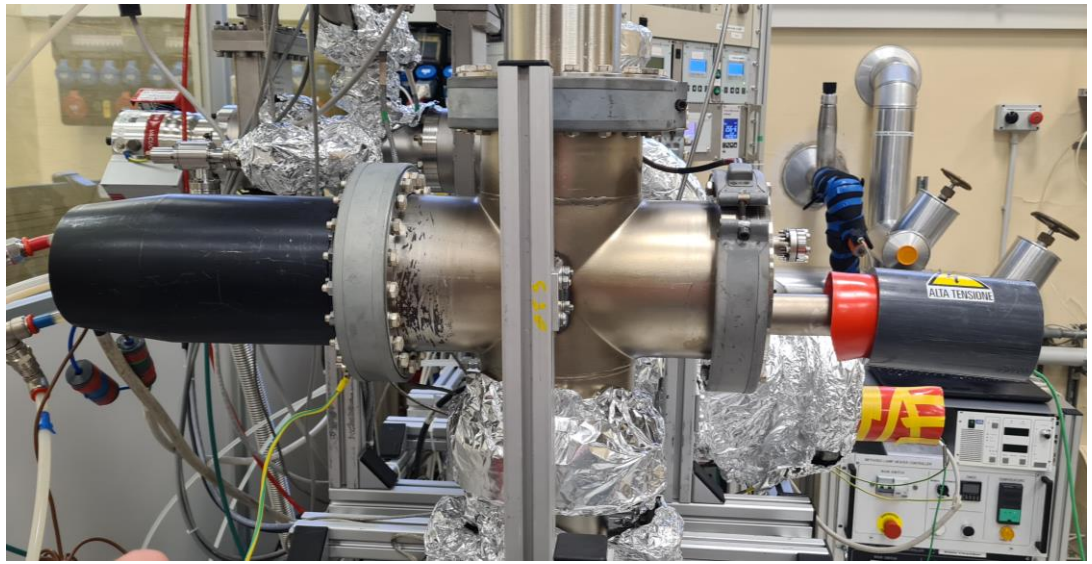
Nb_3Sn Coatings by DCMS

LNL Nb3Sn coating system

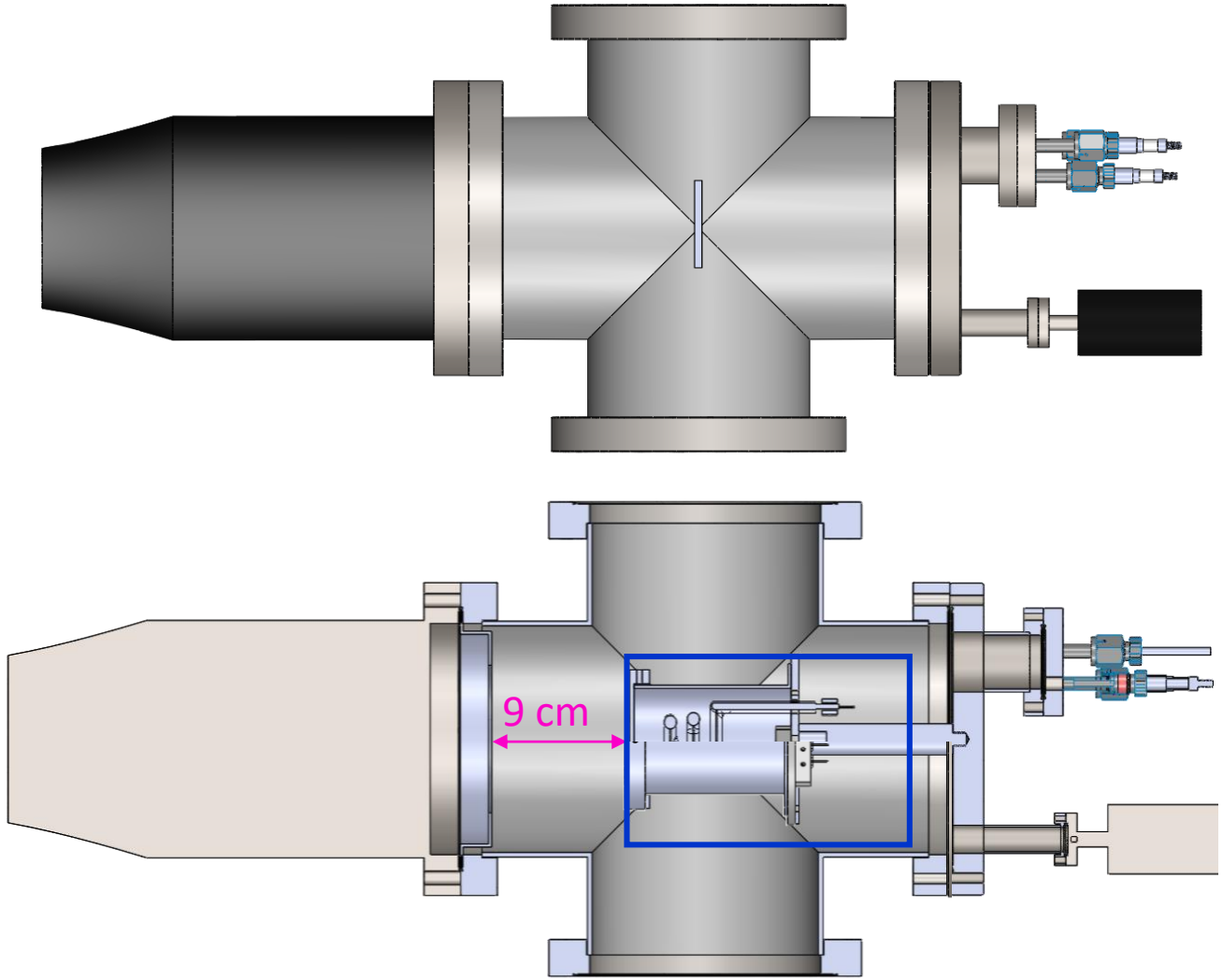




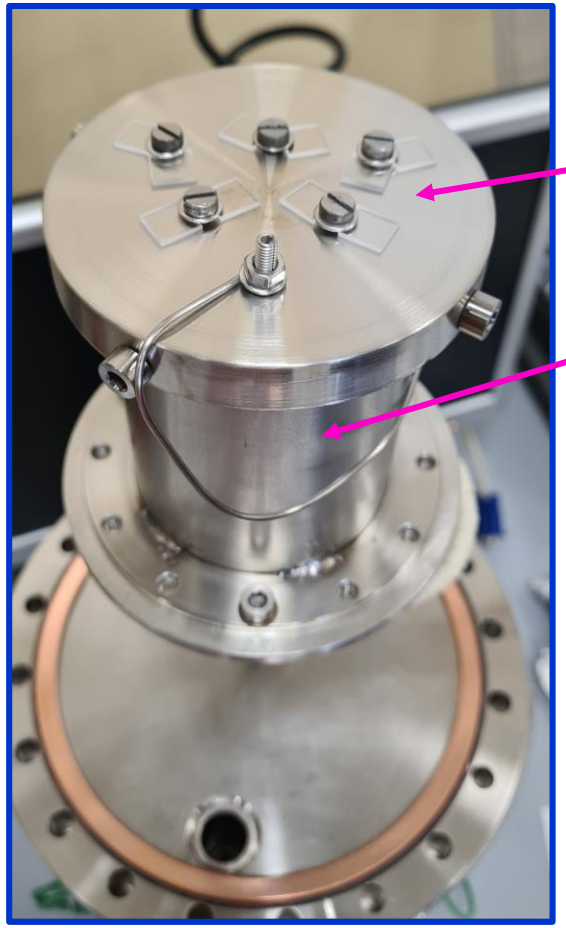
Nb_3Sn Coatings by DCMS



LNL Nb3Sn coating system

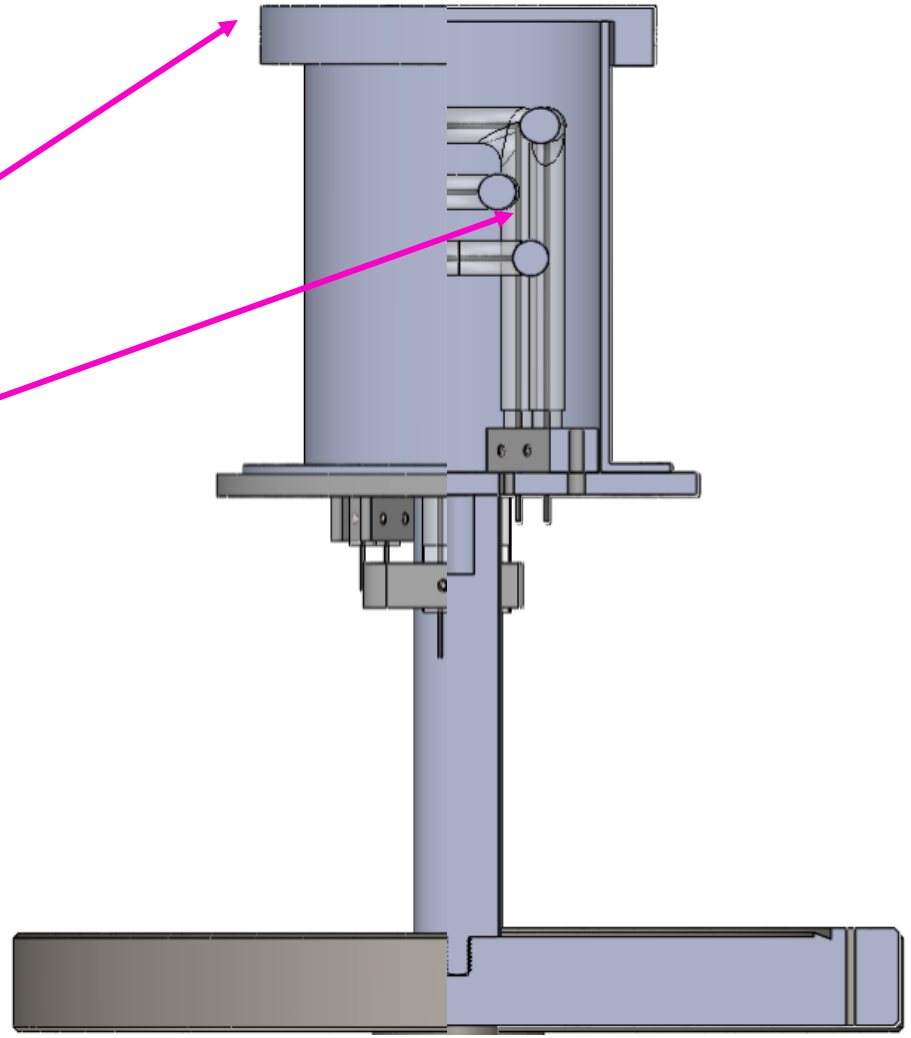


Nb_3Sn Coatings by DCMS



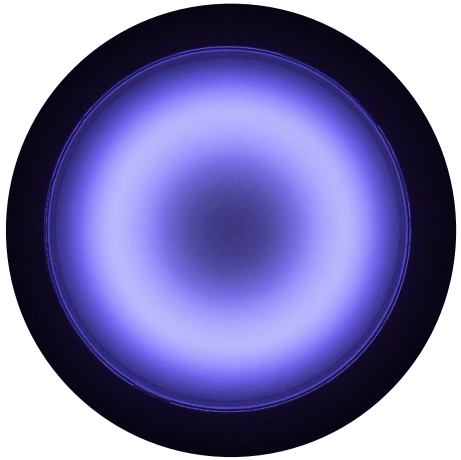
Sample

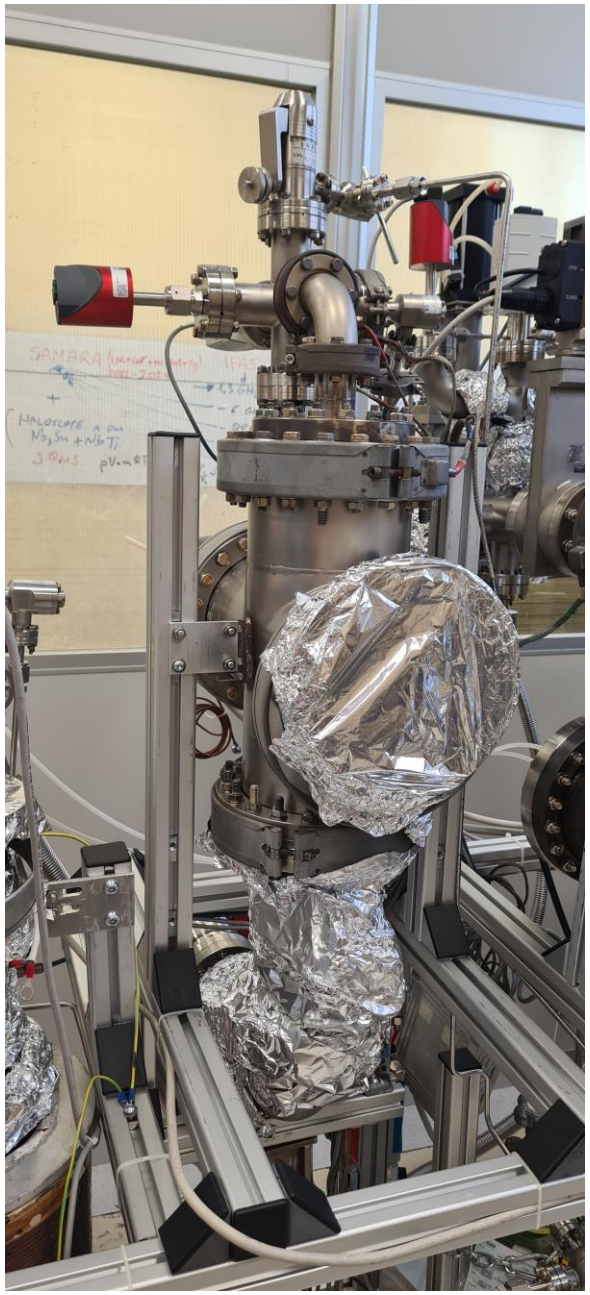
3 IR lamps



Nb_3Sn Coatings by DCMS

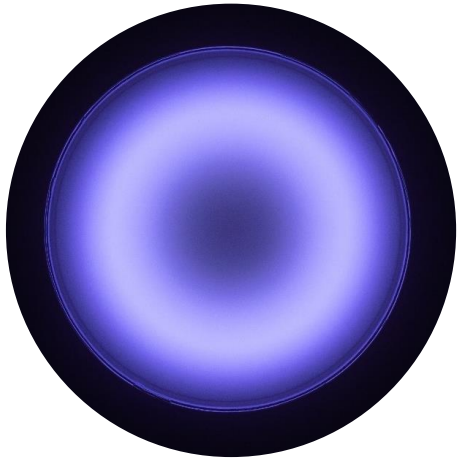
- Sputtering system has been tested: plasma confinement.
- 1,86 – 3,58 W/cm^2
- Target cracked during process.

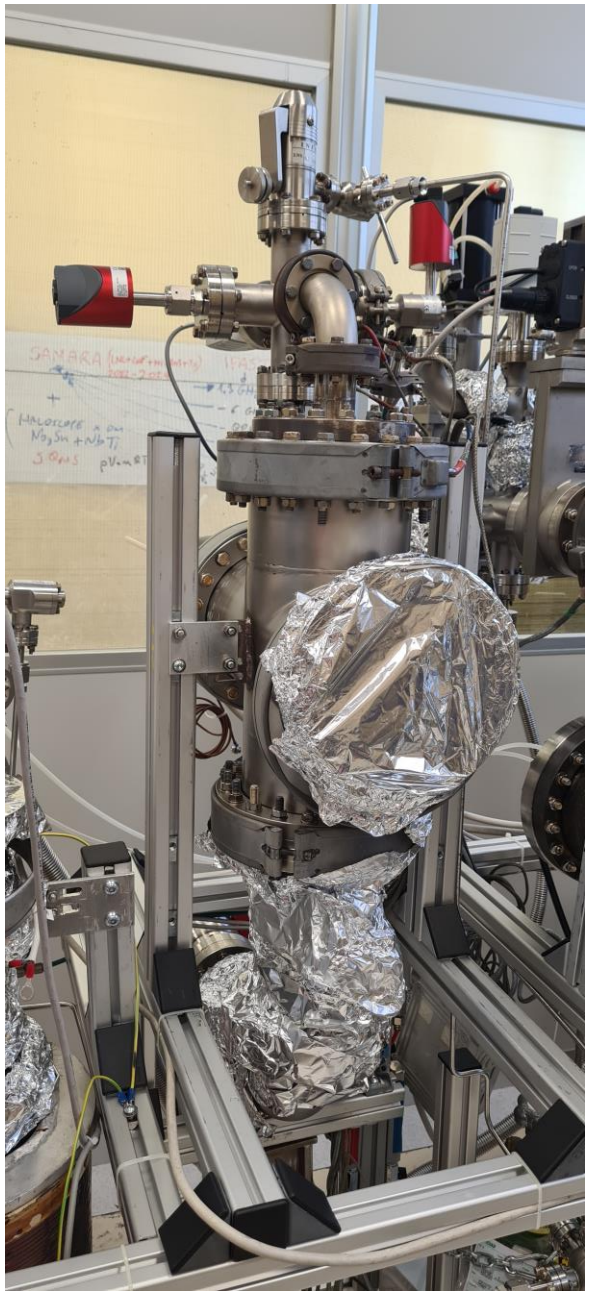




Nb_3Sn Coatings by DCMS

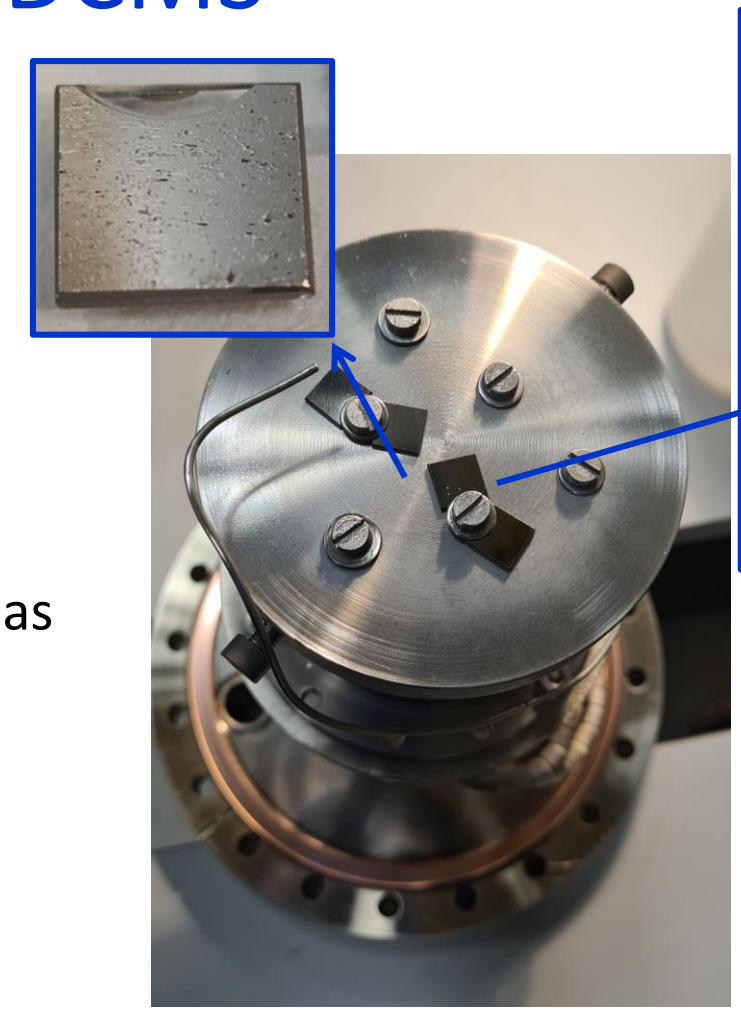
- Sputtering system has been tested: plasma confinement.
- Target cracked during process.
- **Is it possible to coat samples with the target cracked?**

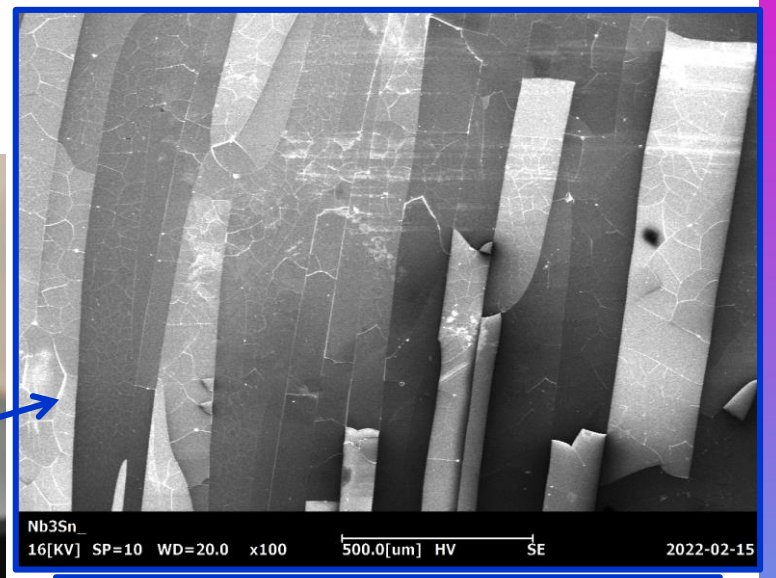


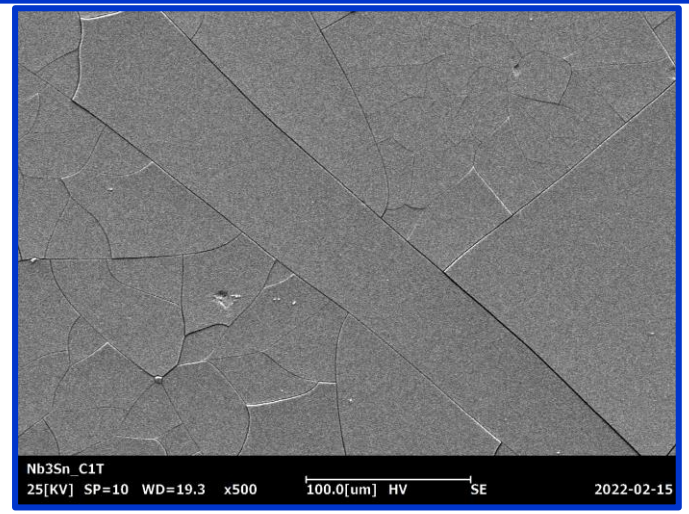


Nb_3Sn Coatings by DCMS

- 2 Sputtering test on samples
  - 0,3 A. 2,15 W/cm^2.
  - 7x10^{-3} mbar
  - 400°C
- Stressed samples and no Nb_3Sn phase has been achieved yet.
- No SC transition during inductive Tc measurement.

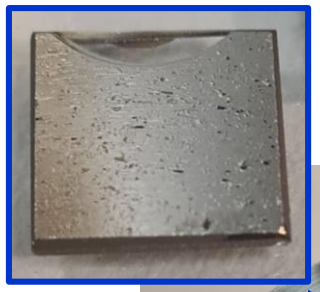


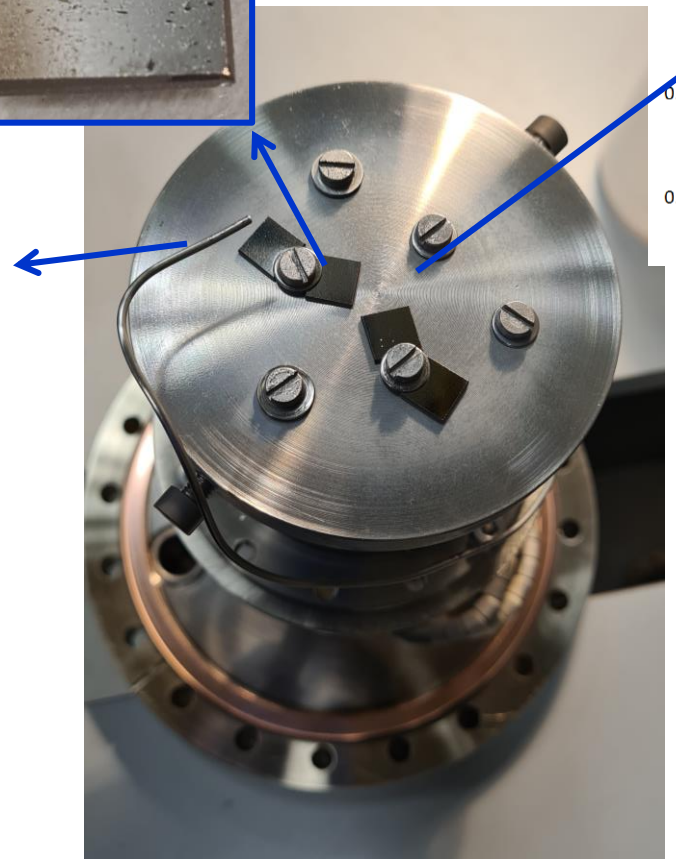


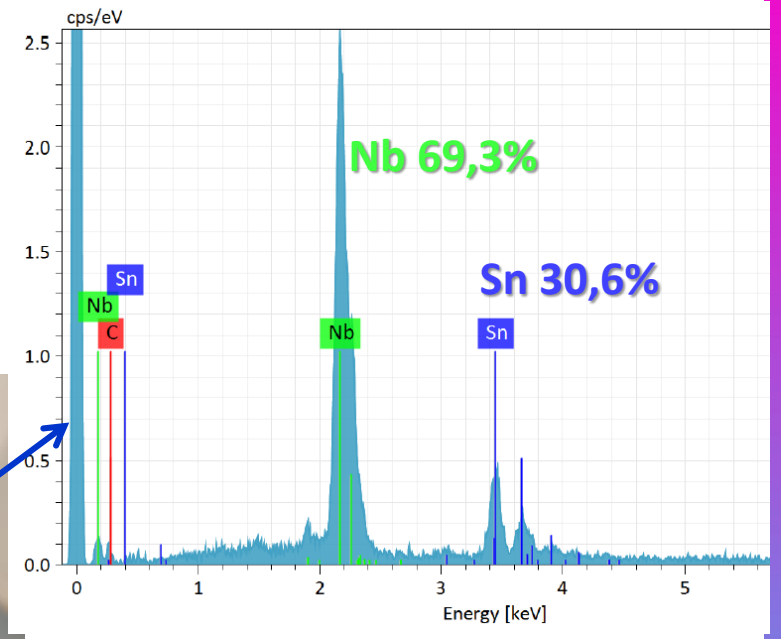


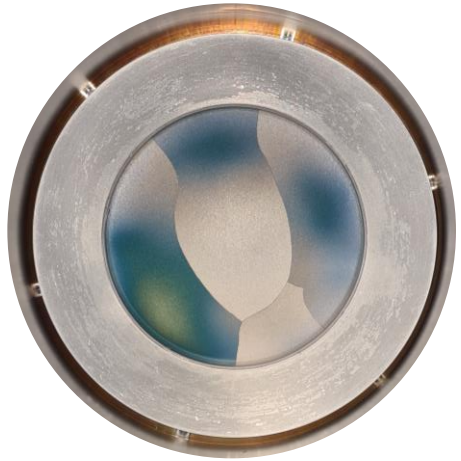
Nb_3Sn Coatings by DCMS

- 2 Sputtering test on samples
  - 0,3 A. 2,15 W/cm^2.
  - 7x10^{-3} mbar
  - 400°C (problem with thermocouple)
- Stressed samples and no Nb_3Sn phase has been achieved yet.
- No SC transition during inductive Tc measurement.



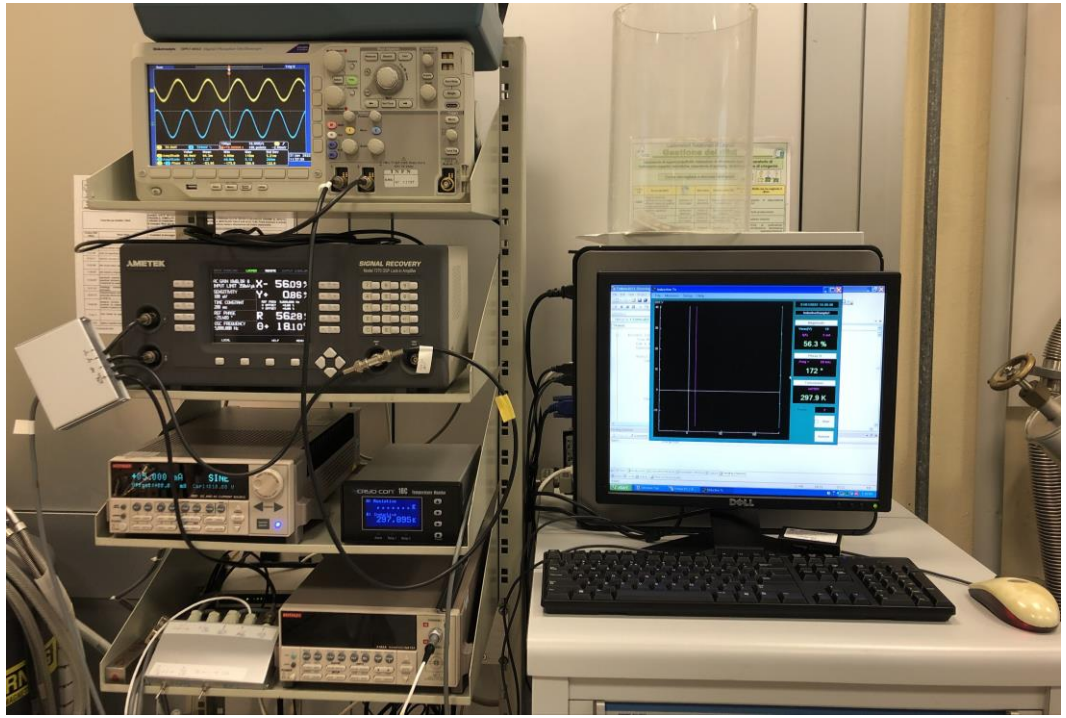


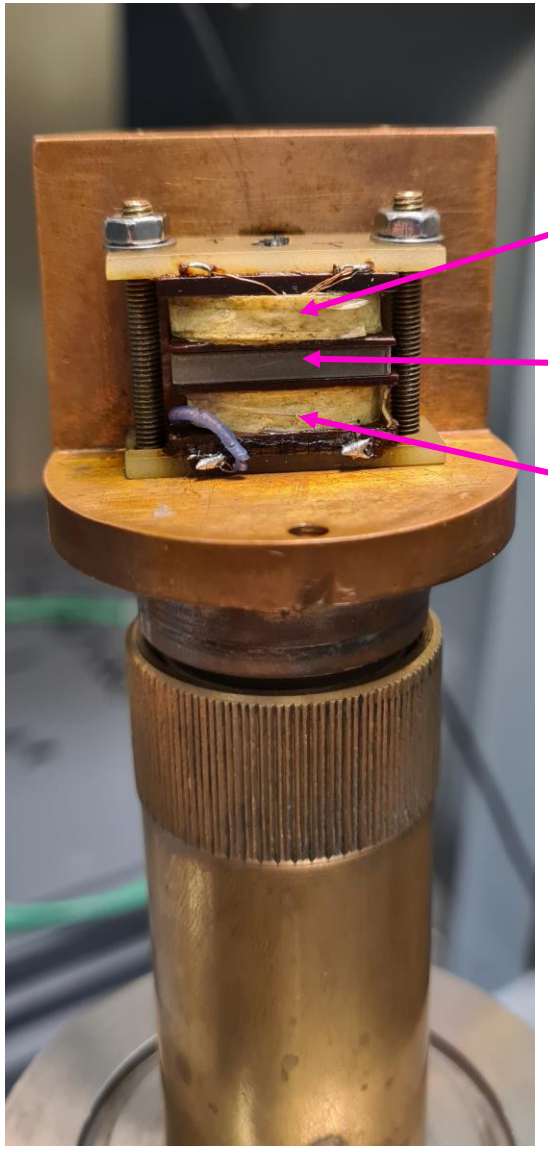




Tc inductive

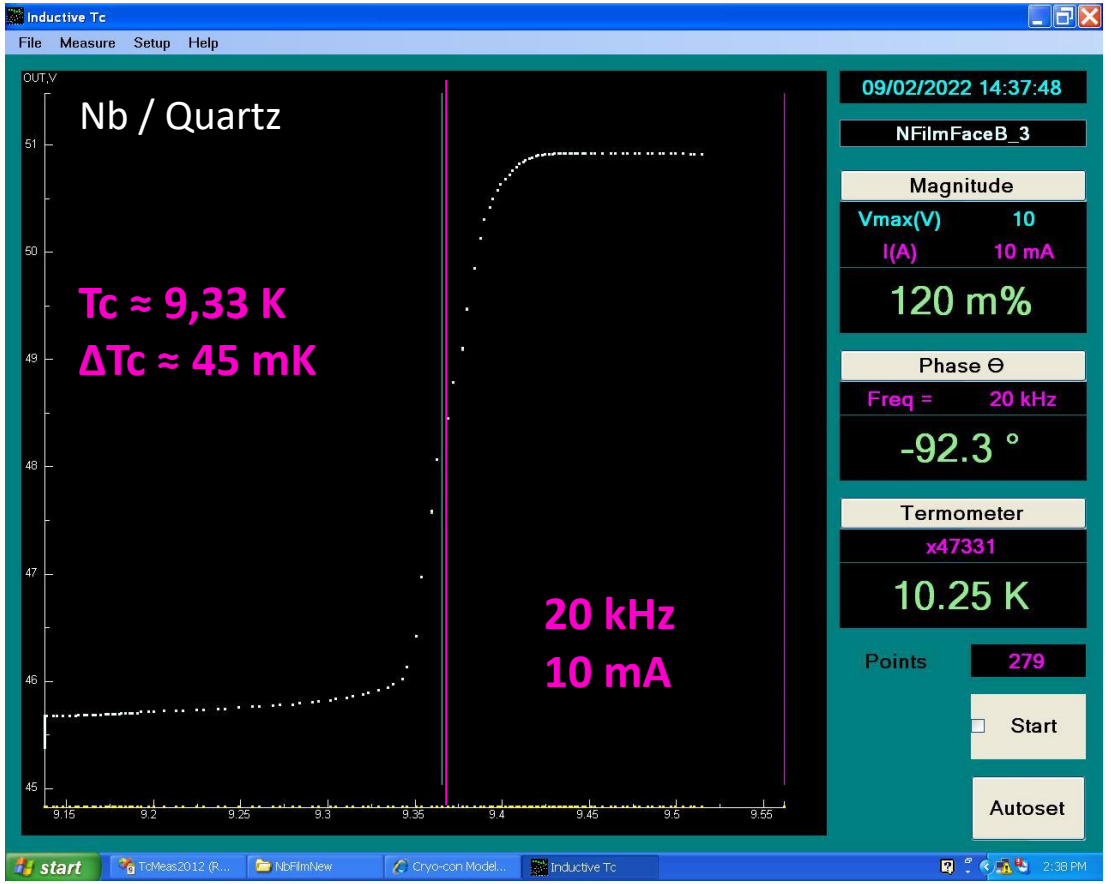
In order to measure Tc, a dedicated inductive Tc measurement system has been refurbished and tested.





Tc inductive

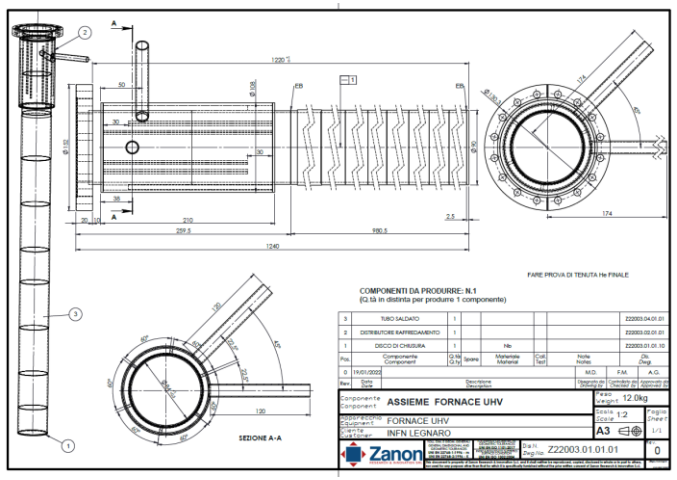
- First tests in known Nb bulk and film samples
- Working ranges:
  - 1-100 mA
  - 0,2-50 kHz
  - >4,2 K

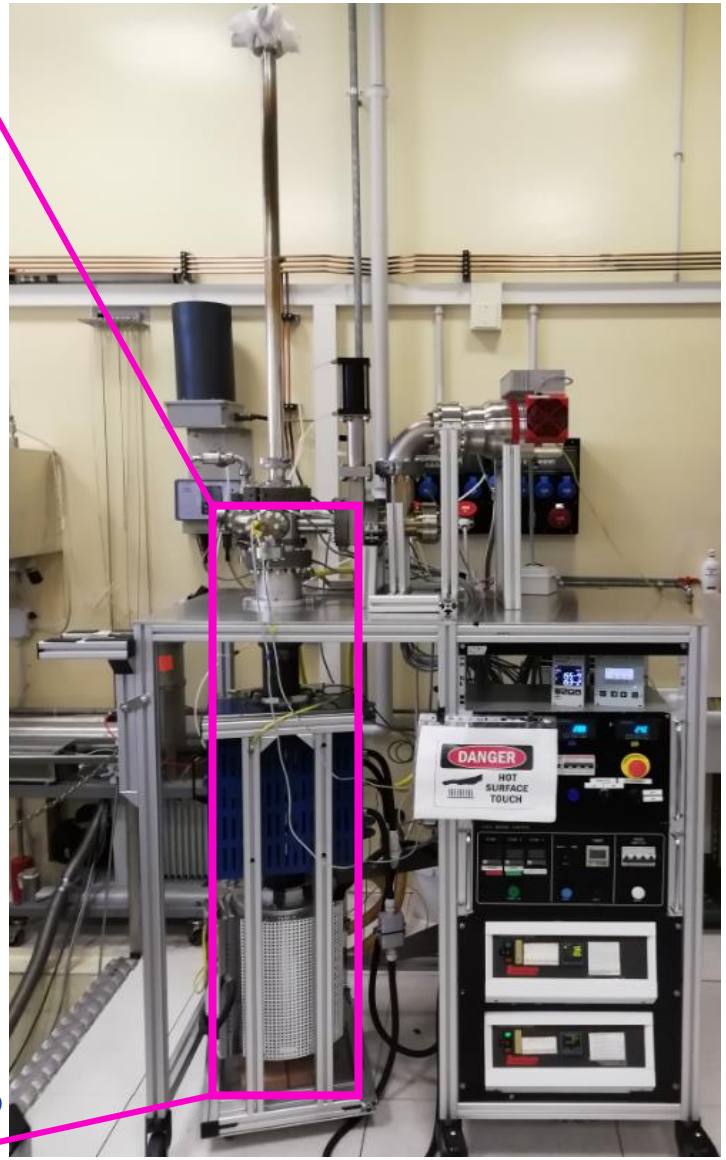


Optimization of parameters for different substrates: films and bulk

Nb_3Sn by Liquid Tin diffusion (dipping)

- 1,3 m long Nb chamber commissioned to Zanon.
- Delivery expected: end of February

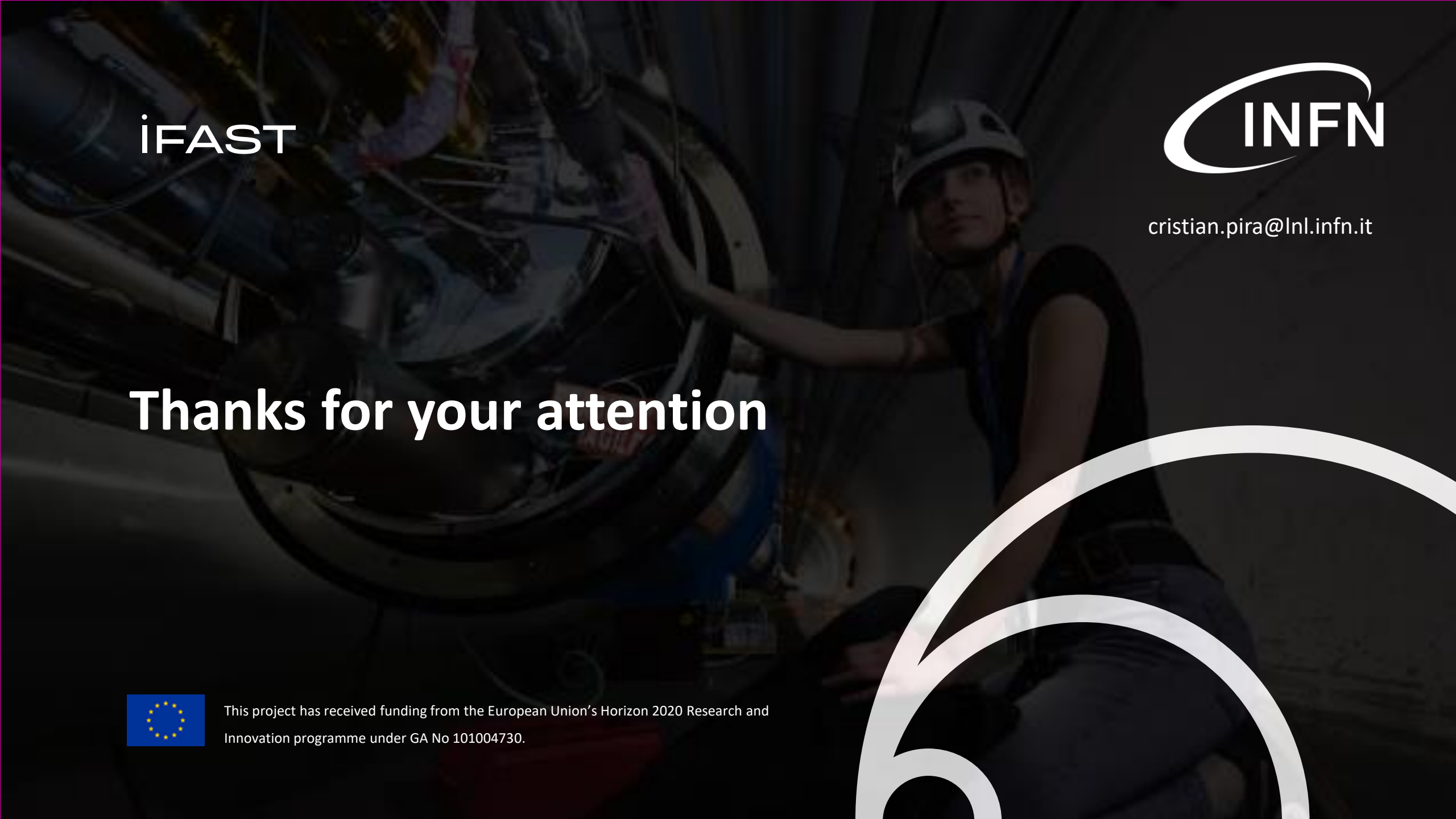




EP Software upgrade

- New software is under development to substitute the 30-years-old EP control/monitoring system

- Possibility to work with different power supplies for EP and PEP (plasma electrolytic polishing)



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Thanks for your attention

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