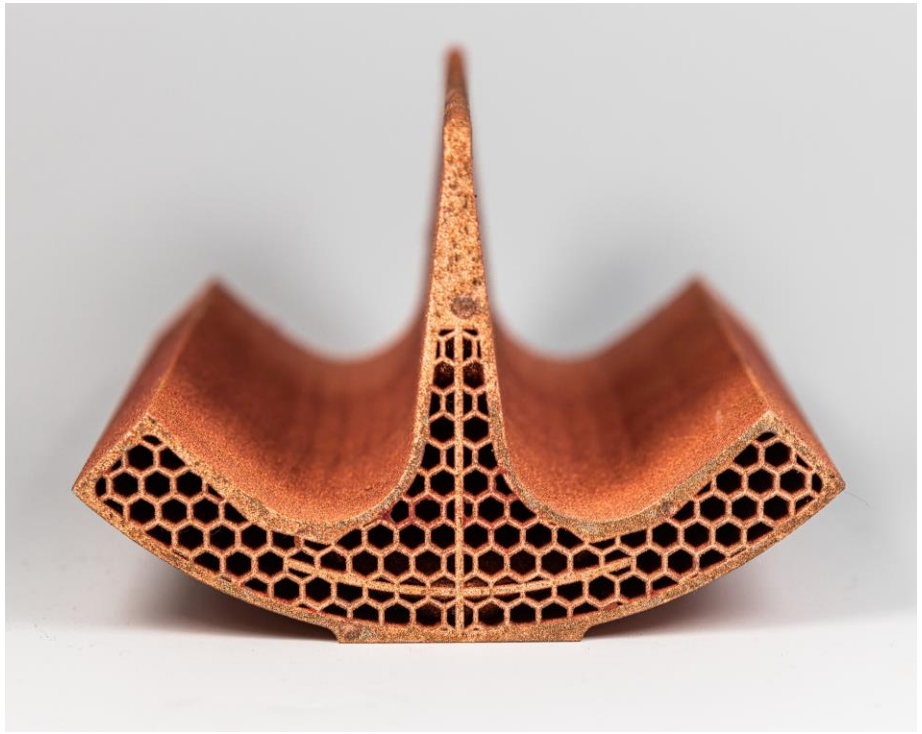
18.03.2022

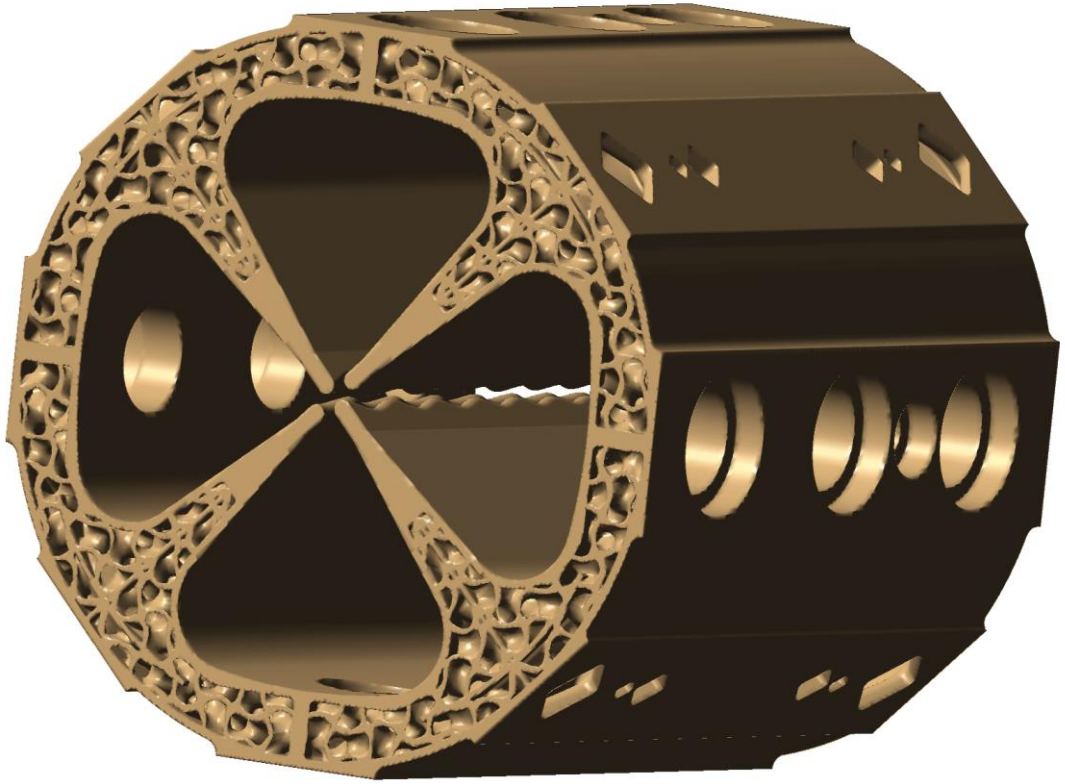
Toms TORIMS (RTU), Maurizio VEDANI (PoliMi)

Task 10.2: **AM - Survey of applications and potential developments**



- ¼ RFQ measurements
  - Precision
  - Surface roughness
- Study of ¼ RFQ results
- ¼ RFQ post-processing tests

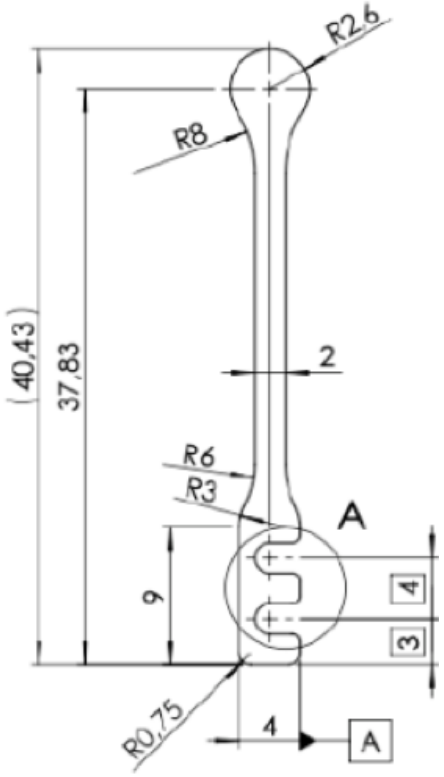
Task 10.2: **AM - Survey of applications and potential developments**



Courtesy of Guntis Pikurs

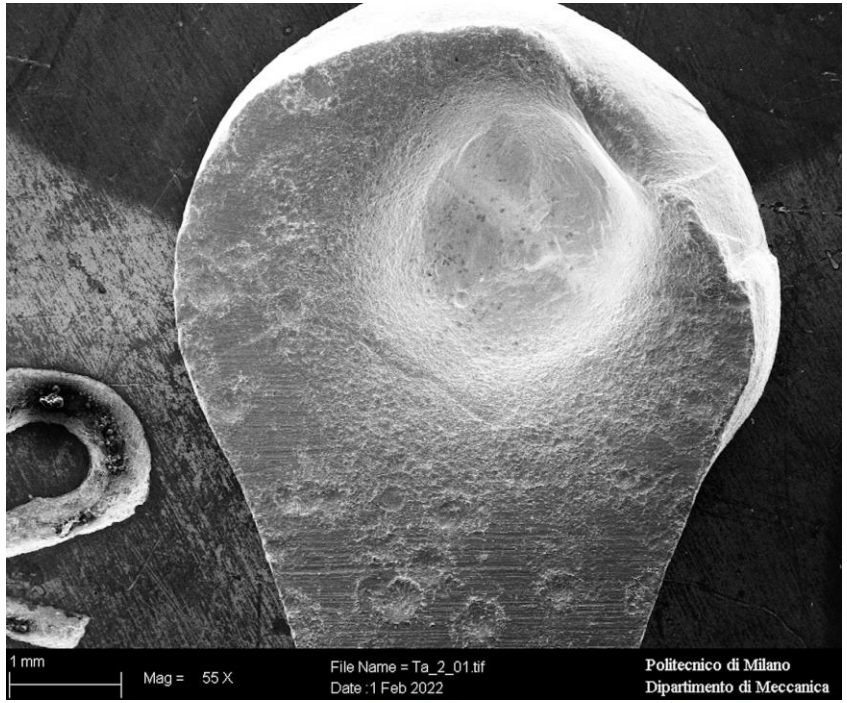
- Full RFQ design
  - OFE Copper ~3.7kg
  - Gyroid lattices
- High Voltage holding tests for AM build electrodes
  - Without post-processing
  - With different post-processing
- Attracting the AM industry

Task 10.3: Refurbishment of accelerator components by AM technologies



- Ta cathodes for PIG ion source characterisation
  - Details of surface morphology
  - Optical microscopy
  - 3D scanning
- Study of repair strategies
  - Standardised repairs
  - Individual repairs

Task 10.3: Refurbishment of accelerator components by AM technologies



- Survey
- Ta cathode repair
- Demonstrate repaired object
- Ta cathodes test at Ion source
- Strategic vision of AM repairs into accelerator technologies

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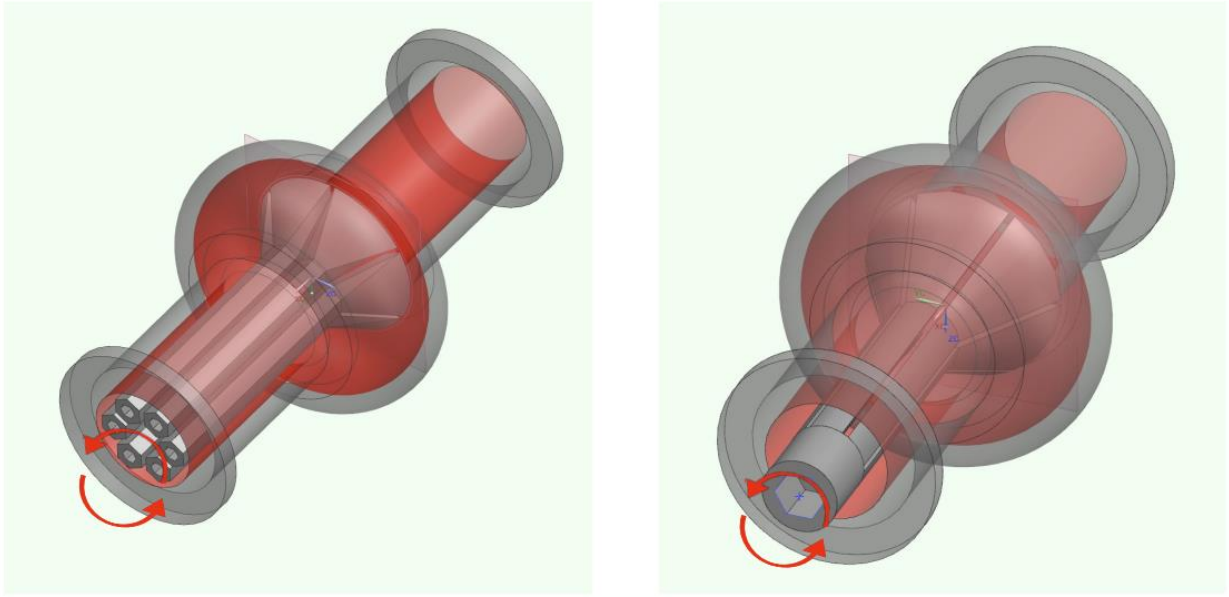
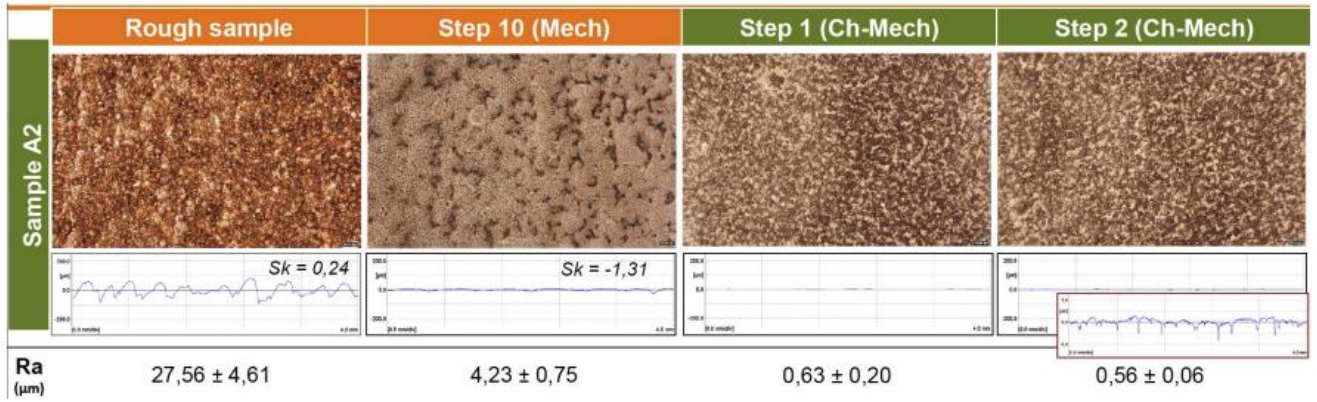
Task 10.4: Development of AM-manufactured superconductive RF cavities



Courtesy of Adriano Pepato

- Internal supports
- Removal of internal supports
- Improve the surface quality of the as-built parts
- Characterization of Nb powder

Task 10.4: Development of AM-manufactured superconductive RF cavities



- Cu cavities printing by AM
- Cavities post-processing tests

Courtesy of Matteo Pozzi

WP 10 - Dissemination and communication plan – by May 2022

- **Methodology** [communication strategies] on how we are going to promote these promising technologies
- Tools to be used
- Genuine link to the overall I.FAST dissemination and communication activities
- All Task of WP10 to be included

I.FAST

Innovation Fostering in Accelerator Science and Technology

Horizon 2020 Research Infrastructures GA n° 101004730

DELIVERABLE REPORT

Dissemination and communication plan

MILESTONE: MS43

Document identifier:	IFAST- MS43
Due date of deliverable:	End of Month 12 (May 2022)
Report release date:	xx/xx/2021
Work package:	WP10: Task 10.1
Lead beneficiary:	RTU
Document status:	Draft

ABSTRACT

Novel technologies to be considered

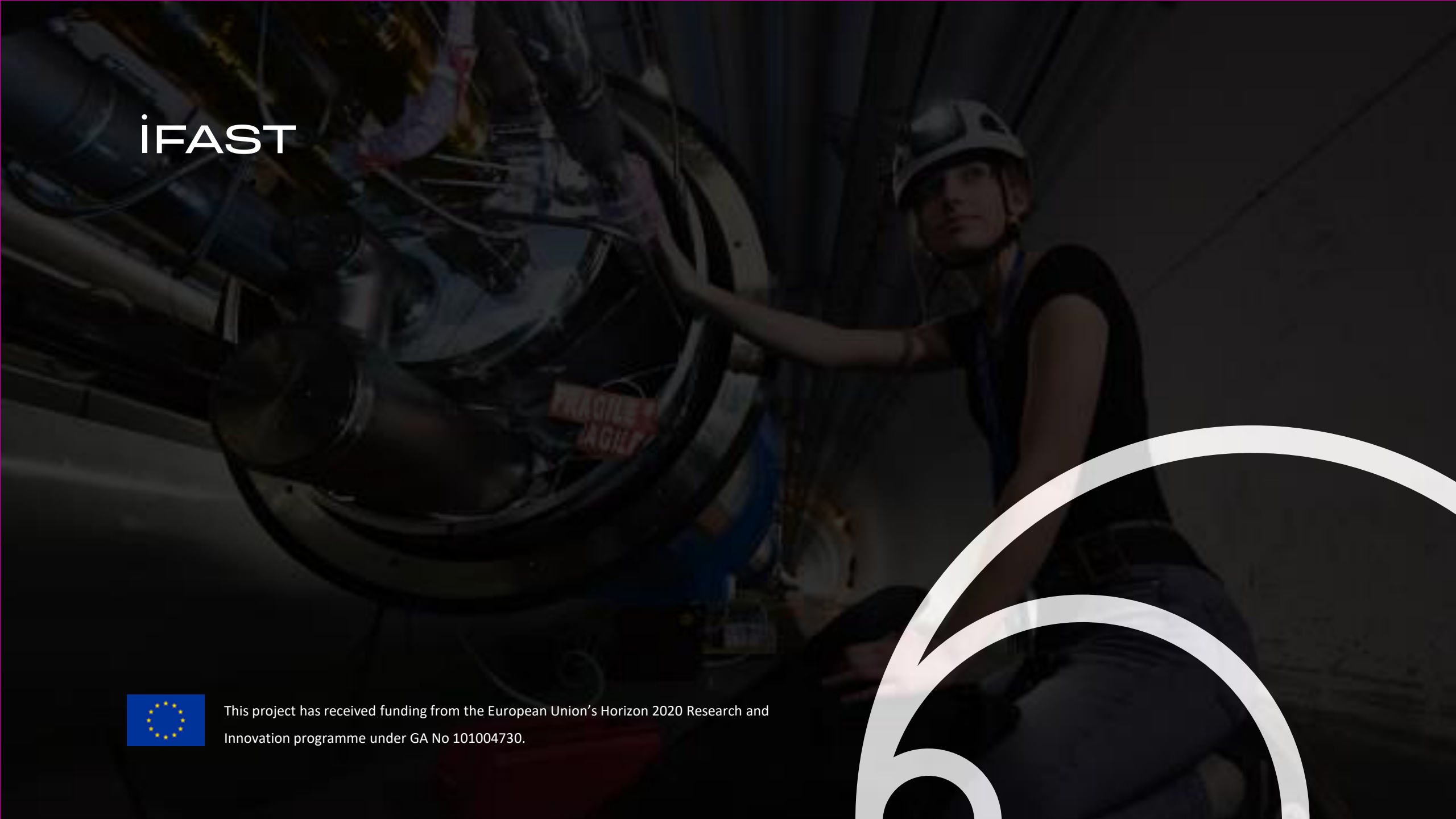
Which are technologies of WP10 to promote?

- Additive Manufacturing (AM)
- Machine Learning (ML) techniques for accelerator and target instrumentation
- NEG (Non Evaporable Getter material) coatings for accelerator vacuum chambers
- Electro-optical waveguide sensors as beam electric field sensors

Workshops and meetings

How can AM address the needs of the accelerator community?

- Type 1: I.FAST meetings - project partners:
- Type 2: “in situ” meetings with industry and other research institutions – relevant non-project partners and interested parties
- Type 3: “Horizontal Workshops” open to everyone (linked to project Annual Meetings) - transverse multidisciplinary Workshops and events involving two or more I.FAST WPs.
- Type 4: oral contribution to the international conferences and seminars



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