

# IIF: The I.FAST Innovation Fund

Marcello Losasso - CERN –  
IFAST Open Steering Committee  
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WP4 [CERN, CNRS, GSI, HUD, INFN, NNK, RHP, WWU ]

- WP4 promotes innovation by structuring and implementing an internal funding for financing cutting-edge innovations explored within I-FAST.
- WP4 will monitor the advancement of the funded projects assessing results and properly allocation of funds according to established workplans.
- WP4 is also engaged into 2 R&D industrial activities:
  - GRAPH&BEAMWIN, a collaborative project to develop beam windows for next generation of accelerators
  - innovative material industrial developments
- WP4 KoM was on 05.05.2021. A WP4 online meeting will be held on 16<sup>th</sup>, 16h30 (after the closing remark from Maurizio)

## WP4

### Task 4.1: Innovation Management and Committee (CERN, HUD, CNRS, INFN)

*Scouting and investigating opportunities* of innovations within the technical scope of I.FAST, internally to the project and even more externally. The IIF is a competitive call for cutting-edge innovation-oriented projects in collaboration with industry. Performed starting from Y2 of the I.FAST. Its allocated budget allows supporting *5 - 10 projects*.

CERN (supported by CNRS and INFN) will define:

*Selection Criteria* → according to priorities for the accelerator community

*Evaluation Committee* → including industrial partners and community members. It will score proposals according to the criteria and select projects to fund, in transparent and structured process. Approval by the I.FAST STC is foreseen.

### Task 4.2: Management of the Innovation Fund (CERN, CNRS, INFN)

IIF will be implemented according to processes with ML and Del defined for each project. Projects will be monitored by WP4 to verify that budget is used in effective and proper way. The GB will be proposed to approve the transfer of funding from CERN to the partners engaged in the IIF, and will control reporting and dissemination of results.

*Thematic workshops* with participation of industries will be organized by CERN and HUD (and maybe WP3?) preparing for the implementation of the I.FAST Innovation Fund (IIF).

# Industrial and R&D activities in WP4

## **Task 4.3: Innovative beam windows for high-power accelerator applications**

[CERN, GSI, RHP, WWU, ...]

- From M1 to M32 - Analyze, simulate, produce and characterize innovative materials suitable for beam-windows applications in high-power accelerators.

*→ Presentation by Marilena Tomut*

## **Task 4.4: Large scale Carbide-Carbon Materials for multipurpose applications**

[CERN, NNK]

- From M1 to M48 Promote the use of carbide-carbon materials (CCM) in future particle physics facilities and open up the market to commercial applications, by increasing the maximum achievable volume of CCM components and decreasing the final production costs of the material

*→ Presentation by Federico Carra*

# WP4 deliverables timeline

Deliverables related to WP4	
<b>D4.1:</b> Evaluation criteria for IIF projects, and Evaluation Body. <i>Define, agree and approve the system for implementing the IIF.</i>	M20 [ Nov 2022]
<b>D4.2:</b> IIF Projects awarding. <i>Define the projects that will be funded.</i>	M24 [March 2023]
<b>D4.3:</b> Beam-windows prototypes. <i>Manufacture and test of 2 beam-windows prototypes.</i>	M32
<b>D4.4:</b> Production of large-size CCM plates. <i>Produce two large CCM plates (cross section &gt;400 cm<sup>2</sup>) in a single sintering cycle.</i>	M24

*Maybe to add an event/deliverable/milestone for the End of IIF Projects results?*

# WP4 – thematic workshops

To improve relations between industrial and academic participants and enhance contacts and relations with European SME's, WP4 will organize **Thematic Workshops**, open to academia and industries within and outside of the I.FAST consortium.

With WP3 and HUD we have started discussing possibility of a common event organization in 2022

→ it could be also a way to make public the IIF and to motivate and encouraging industries to engage with I.FAST and IIF.

***WP4 is open to proposals coming from the I.FAST community.***

# IIF implementation timeline to match IFAST calendar

## **Definition of selection criteria for the IIF → February 2022**

Requires definition of priorities and main objectives, success criteria. *Approval from STC*  
As was for PoC of ARIES, IIF should act as a seed fund able to join different actors around viable and innovative ideas. Each actor mobilizing financial and technical resources in addition to the seed fund itself.

## **Setting up of an Evaluation Committee → March 2022**

Requires avoiding of conflicts of interest, in collaboration with the I.FAST industrial partners, requires *approval from SCT*

**IIF call → May - July 2022** — to select and award the proposals to be supported by this scheme.  
*Requires STC (or GB ?) decision*

## **IIF projects management → from July 2022 till IFAST end**

Requires definition of appropriate deliverables projects and follow-up / monitoring of execution, schedule of payments.

***Maurizio to advice on this tentative working schedule***

# IIF as a platform for strategic innovation

- IIF is an innovation platform in I.FAST combining strategic innovation discovery and commercial opportunity matching.
- Ambitions:
  - Fast track: from the open call, to project evaluation and selection up to the final project report we target maximum 2 Y.
  - Development of new technologies, materials, applications and products that can increase performance and advance accelerator technologies
- Should we try to be even more ambitious, and finding a way to make happier the European taxpayers for their investing money in accelerator technologies ?



# IIF as a platform for strategic innovation

- Strategic means definition of areas of action. Matter of discussion in the selection criteria of IIF
- (my view) the investment should seek to generate impact in the areas that are today on top of the global agenda of civil society: **sustainability and environmental protection**, the current challenges raised at COP26
- Ambitions ++ :
  - Advance accelerator technologies in the quest of protecting environment.
  - Develop accelerator technologies to secure:
    - fresh air, clean water, healthy soil and biodiversity → *i.e. beam and nuclear techniques to purify water, air, soil*
    - Increase energy efficiency → *i.e. advanced magnets, Rf systems,*
    - healthy and affordable food → *i.e. sterilization,*
    - cleaner energy and clean technological innovation → *ADS and innovative nuclear*

# IIF as a platform for *strategic* innovation

Climate change and environmental degradation are an existential threat to Europe and the world. We as a community need to deliver our contribution.

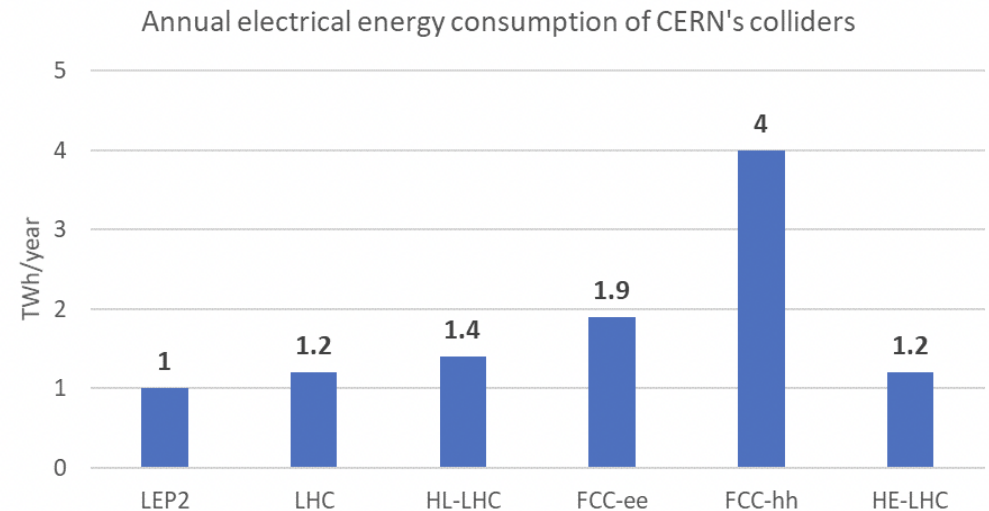
The EU research infrastructure of the future shall be aligned with the commitments taken by our MS.

There is a disconnect of HEP community with EU path to neutrality [ reduce greenhouse gas at least 55% by 2030 ]

There are opportunities: European Green Deal provides **1.8 trillions euro** investments

CERN GHG emission (from particle detection, power consumption and detector cooling) has increased in past years up to more than **200.000 tCO<sub>2</sub> eq.**

To offset this figure we would need to plant 9.200.000 trees.....Each year.....



# Conclusion

- WP4 is on track.
- In 2022 will be started the activity related to IIF
- A thematic workshop/event to launch IIF/ will be held in 2022
- It will be proposed for IIF to address technological areas related to environmental protection and energy.
- Industrial activities in WP4 have already progressed and we will listen soon from TLs

# iFAST

Thank you !



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