



M. Vretenar, CERN, Project Coordinator

CERN, 4 May 2022

Welcome to the 1st I.FAST Annual Meeting

Following a long standing tradition of our EU projects for Accelerator R&D, we are glad and honoured to welcome the I.FAST community at CERN for its first Annual Meeting!

(and candidates can already announce themselves for the 2023 meeting...)

The CERN Globe provides the ideal environment for the first personal exchanges and for making and enhancing the (transverse) connections that are one of the foundations of our accelerator projects!

With 197 participants, (61 online and 136 on-site) one of the largest meetings ever.

Integrating Activities for accelerators and the new Innovation Pilot I.FAST



Long tradition of EC support to **particle accelerator R&D**: four successful Integrating Activities have raised 43 M€ EC funding over **16 years** (2.7 M€/yr).

Integrating Activities and Innovation Pilot: Development of cross-boundary subjects, not directly followed by large laboratories, with added value coming from collaboration and sharing of resources.

I.FAST is a new step in this progress, including for the first time a large industry representation (1/3 of participants!)

The new I.FAST

Innovation Fostering in Accelerator Science and Technology

Innovation Pilot, A new pilot instrument to demonstrating the role of Research Infrastructures in the translation of **Open Science** into **Open Innovation**.



Particle accelerator community entering the age of open innovation:

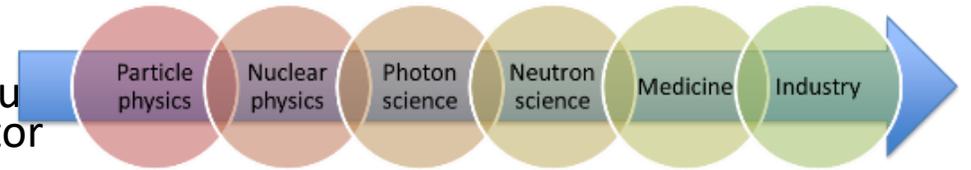
Sharing of ideas between scientific institutions and companies, to improve high technology products and to identify new products and markets.

Creation of an *innovation ecosystem* (Keywords: *community, trust, openness, creativity, connection to industry*)

- Wider goal: **48 beneficiaries** – 8 large RI operators, 12 national research centres, 12 universities, 16 industrial partners (**1/3**, including 11 SMEs) - from 15 European Countries, supported by 12 partner organisations and >20 collaborating institutions, jointly **developing technologies for the next generation of particle accelerators**.
- Timeline: **4 years**, starting 1 May 2021.
- Resources: **10 M€** EC contribution, out of a total project cost of about **19 M€**.

Goals and structure of I.FAST

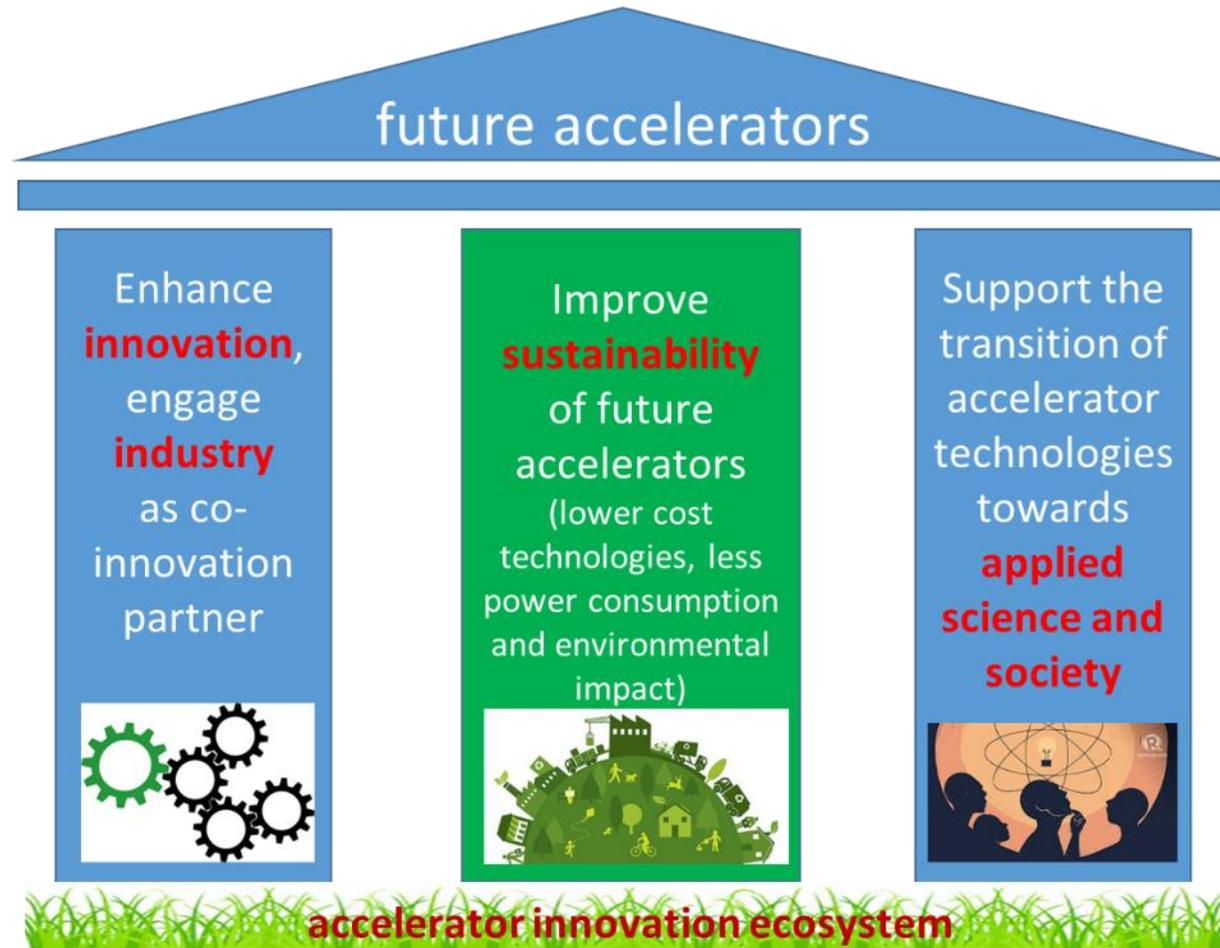
- The core of the project is made of “**co-innovation**” R&D activities with industry, at different Technology Readiness Levels (TRL).
- 37 activities (Tasks) have been selected from a bottom-up call in 2019, out of 101 proposals submitted, coherent with the priorities of the accelerator community and with our traditional strategic goals:
 - **Transverse** approach based on synergies between accelerators for particle and nuclear physics, photon and neutron science, medicine and industry.
 - **Collaborative schemes** involving laboratories, university and industry.
 - Priority to **long-term R&D topics** (“high risk – high gain”).
- 3 types of activities:
 - **Strategies**: study groups to define “roadmaps” for specific technologies.
 - **Prototypes**: prototyping with industry at higher TRL.
 - **Developments**: development, often with industry, at lower TRL.
- 9 “**thematic areas**” (Work Packages), made of a strategy with one or more prototypes and developments, and 5 “**transverse**” WPs (coordination, training, industry, innovation, ethics).
- 1 M€ for a **second internal call** for proposals in 2023-25.



WP	
1	Coordination, dissemination
2	Training, communication, outreach
3	Industry engagement
4	Managing Innovation, new Materials
5	New concepts, performance improvements
6	Novel particle accelerators concepts and technologies
7	High brightness synchrotron light sources
8	Innovative superconducting magnets
9	Innovative superconducting cavities
10	Advanced accelerator technologies
11	Sustainable concepts and technologies
12	Societal applications
13	Technology Infrastructure
14	Ethics Requirements

9 thematic areas

The three I.FAST pillars



- These goals correspond to the three I.FAST «pillars», which defined the priorities given in the **selection of I.FAST activities** following the bottom-up call.
- Additional focus areas: **training** and management of **technology infrastructure**.
- This strategy is coherent with the priorities announced in the **2020 Update** of the European Strategy for Particle Physics, and more at large with the priorities of the particle accelerator user communities.

I.FAST and the updated Strategy for Particle Physics



I.FAST was submitted **before the conclusions** of the ESPP Update were announced, and was structured to exploit synergies and not only support the needs of particle physics. The ESPP conclusions are however perfectly in line with the priorities of I.FAST:

- **Strengthen the European ecosystem of research centres:** *I.FAST main goal.*
- **Launch a vigorous R&D on innovative accelerator technologies:** *“raison d’être” for I.FAST and previous programmes, which have supported HTS over the last 8 years, relaunched the muon colliders studies in Europe, supported and structured plasma wakefield research, etc.*
- **Develop synergies with neighbouring fields:** *our main goal since >15 years.*
- **Mitigate environmental impact of particle physics:** *working since 8 years in this direction, with high priority given to low impact technologies in I.FAST.*
- **Knowledge and technology transfer, training of next generation, education and communication:** *dedicated Work Packages in all our projects.*

Out of the 20 ESPP statements, as many as 10 are already part of the I.FAST programme!



One year of I.FAST

- I.FAST is now **one year old** (started on 1 May 2021)!
- The project is still young, there was not much official reporting to present the progress of the project, but so far **all feedbacks are positive**.
- People is **enthusiastic and responsive**, and the quality of milestone and deliverable reports being submitted is in general very good.
- Of course, there are already a **few delays** – and we will discuss them – but this can be considered «within the norm» for such large projects.
- I am looking forward at this Meeting to have a **comprehensive view** of the project and to learn from you about the **recent achievements!**



A few personal highlights

- The **I.FAST Innovation Fund** has been defined (in advance with schedule), the participation rules have been defined, with likely deadline for submission in September 2022. Presentation today by M. Losasso.
- The 1st I.FAST **Challenge Based Innovation** on Accelerators for the environment has been organised to take place at the ESI campus at Archamps near Geneva between 26 July and 4 August. 24 master students from all Europe selected among 187 applicants, with backgrounds in physics, engineering, environment, law, and economics will meet to explore ways for particle accelerators to meet environmental challenges. They will follow on-line seminars and on-site lecture and divided in 4 teams will prepare proposals to be ranked by a special jury at CERN. Presentation today by N. Delerue.



PARTICLE ACCELERATORS FOR THE ENVIRONMENT

Join a ten-day challenge for senior bachelor's & master's level students (all backgrounds)

In Archamps, France (near Geneva, Switzerland)

From 26 July to 4 August 2022

APPLY NOW

Deadline: 14 February 2022
More details: www.ifast-cbi.particle-accelerators.eu

Logos at the bottom of the poster include: IFAST, European Union flag, IFC Lab universit  Paris-Saclay, CNRS, CERN, esi, and Universit  de Bourgogne.

The IIF in a nutshell

The I.FAST Innovation Fund will attribute **1 M€ funding** to a set of projects.

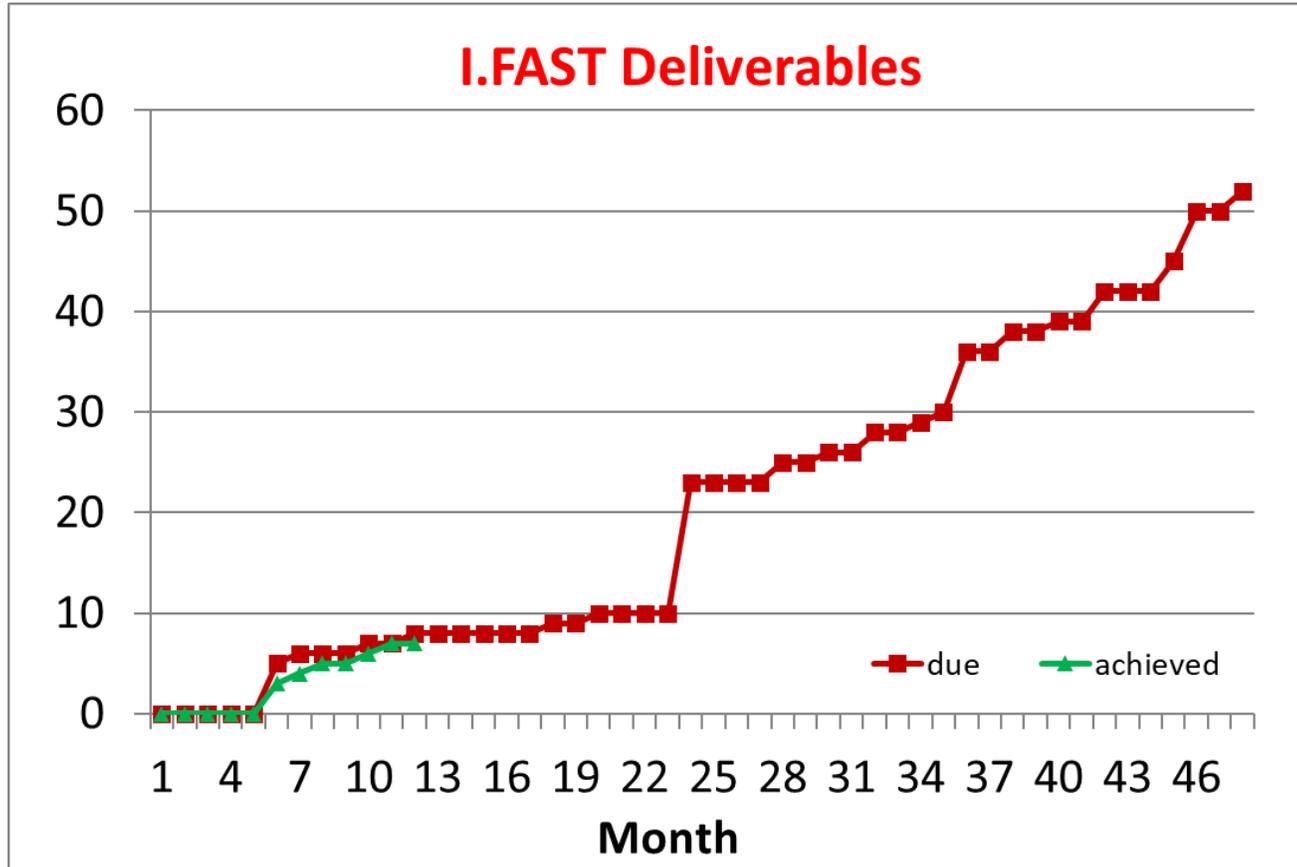
The competitive call will open in May 2022, after approval by the Governing Board, with likely **deadline 30 September 2022**.

Project start in January 2023, for a duration of 2 years (end 2024).

Under **coordination of M. Losasso** (CERN), the rules have been drafted and agreed in the Steering Committee:

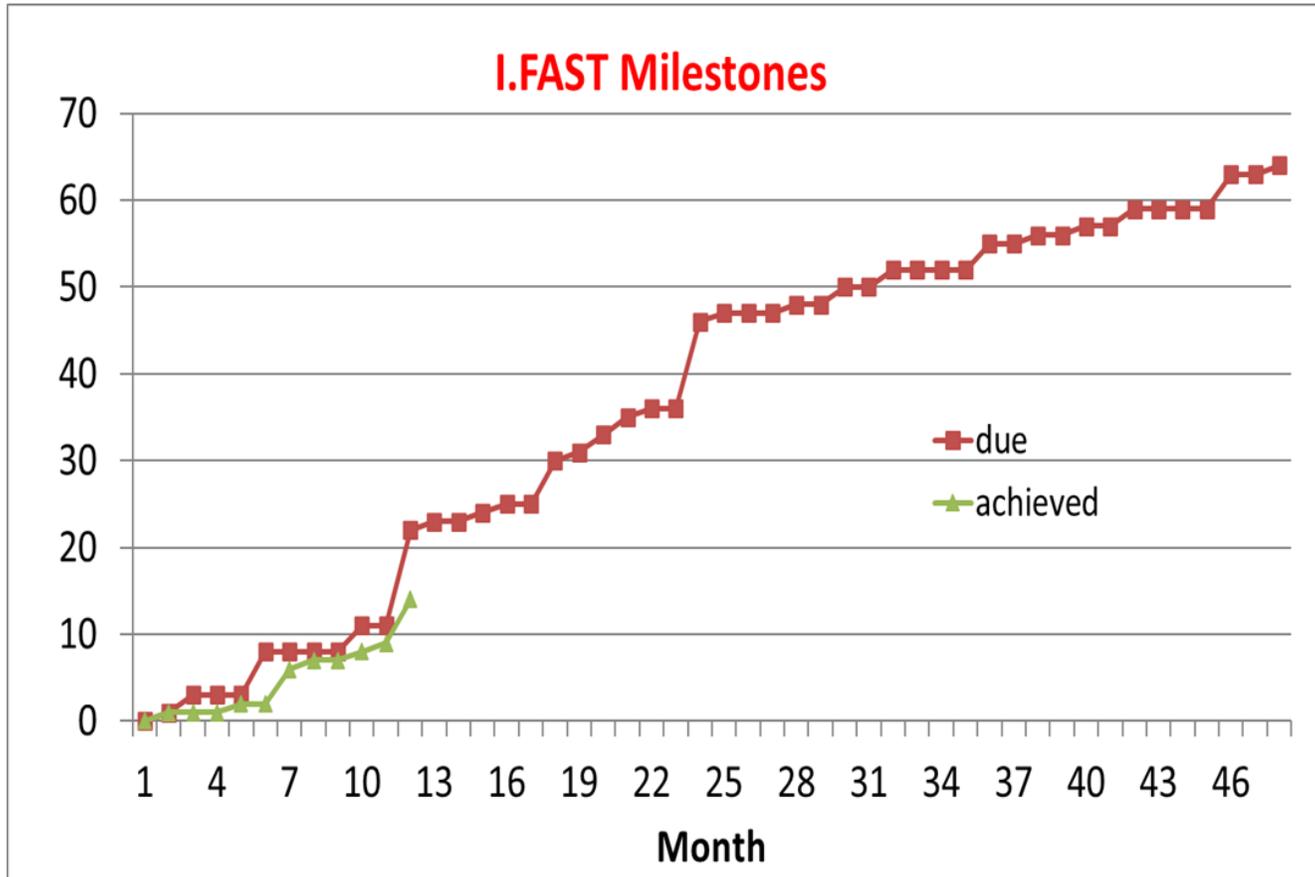
1. Funding between **100 and 200 k€** per project;
2. Consortium: at least **one I.FAST beneficiary and one industry**;
3. **Initial TRL 3 or higher** (from proof-of-concept to laboratory/environment validation);
4. Project has to contribute to **improving sustainability of particle accelerator technologies**;
5. Project must have **potential for industrialisation or commercialisation**.
6. Project must have potential to **attract more resources** than what deployed by IFAST alone.

Status of Deliverables at 1 May 2022



- 7 Deliverables produced so far, all of excellent quality.
- Only 1 Deliverable late:
D10.3 “Additive-manufactured SRF cavities”, from INFN. Announced a 6-month delay, until October 2022 (see next slides).
- 2 more deliverables in 2022, but then 13 in April 2023!

Status of Milestones at 1 May 2022



- 14 Milestone Report produced.
- 1 Milestones is late (delayed Workshop in Task 11.1).
- But only 5 out of the 12 Milestones due end of April have been submitted so far! For 3 has been requested a minor delay, but we have no news from other 4:

MS33	Conceptual design of HTS magnet	8.3	CEA
	Evaluation of a CCM alternative to Molybdenum-		
MS14	Graphite	4.4	CERN
MS43	Dissemination and communication plan	10.1	RTU
	First NEG coated samples are installed on SR		
MS47	beamline at DLS and Soleil	10.5	UKRI

- Please remember that Milestone reports must be submitted well before deadline and send immediately your reports to Valerie!

I.FAST Project Reporting at Year 1

- The first Periodic Report to the EC is due only at M18 (October 2022).
- Following the practice of our previous EU projects for accelerators, we will prepare at the **end of the 1st year** (M12, to be completed by June 2022) a **Project Activity Report** to be submitted to Steering Committee and Governing Board. This report will be then updated to become the 1st Periodic Report (M18) for the EC.
- We have asked each **Task Leader** for a contribution (2 pages in total) to be submitted by **15 May**. The Coordinator will assemble the full report (not the WP Coordinator as in previous projects!).
- CERN will ask all Financial Contacts to submit an **IRUS** (Internal Resource Utilization Summary) by the end of May, to be used for the financial part of the report.
- We have done an effort to **simplify the template** and **minimise the work** for Task Leaders and WP Coordinators, please help to pass the message that these contributions are important and have to be submitted on time.

Announcements

- **Apply for the Simon van der Meer Early Career Award**, sponsored by the European Network for Novel Accelerators WP6. The Award recognises outstanding early-career contributions (theoretical, experimental, computational or technical) in novel accelerator science. Deadline of 8th of May 2022 to send nominations. More information on <https://ifast-project.eu/news/announcement/opportunities/apply-simon-van-der-meer-early-career-award-novel-accelerators>.
- The **I.FAST Industry Traineeship Programme** for young engineers and technicians from industry for spending up to 3 months at an accelerator laboratory has official deadline 1 May but there might be space for some additional after-deadline application: <https://ifast-project.eu/ifast-traineeship-programme>
- During the Annual Meeting, you can visit the **Universe of Particles** permanent exhibition at the Ground Floor of the Globe (opening time: 8:30 – 17:30).
- **Social programme:**
 - today from 19:30, **Welcome Cocktail** at the CERN Glass Box (end of Restaurant 1 Area in Main Building)
 - Tomorrow (Thursday) starting at 20:00, aperitif and **I.FAST Banquet** at the **Fairmont Grand Hotel** (1st floor), Quai du Mont-Blanc 19. Take the tram 18 to the Main Station (Cornavin) then 13' walk (960m). **Only for people having registered** for the Banquet (ticket in your badge)!

And now ladies and gentlemen, the floor is yours...

- **I thank you** for your attention and for your confidence and trust in managing this project, and I look forward at your presentations during the next 3 exciting days!
- **This is your project**, please take charge of it!



Winner podium vector created by upklyak - www.freepik.com

And please do not forget to acknowledge the I.FAST Contribution in all your publications!



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

A warm welcome to the three members of our Scientific Advisory Committee

- **Akira Yamamoto (KEK)**, Head of Linear Collider Project Office at KEK, expert in applied superconductivity, already member of EuCARD2, ARIES and AMICI SAC.
- **Michiko Minty (BNL)**, Head of Accelerator Division at the BNL Collider Accelerator Department, with wide experience in accelerator design and beam optics.
- **Carsten Welsch (U. Liverpool)**, Head of Physics Department at U. Liverpool, has participated in many accelerator projects, with expertise in beam instrumentation and optics, science communication and outreach, etc.



Another warm welcome to the 12 members of our Industry Advisory Board

Who we are

The I.FAST Industry Advisory Board (IAB) is composed of representatives of European companies that have been successfully involved in the largest scientific undertakings carried out with particle accelerators and is chaired by a scientist with a large and consolidated experience in the interaction between industry and research institutions.

What we do

In I.FAST there are many R&D activities carried out in collaboration between research groups and companies and the main objective of the IAB is to help the project to make these interactions as effective and fruitful as possible.

S. Stres temporarily replaced as chair by A. Faus-Golfe.



IAB Members



Spela Stres
IAB Chair - Director of the Center for Technology Transfer and Innovation (CTT)



Miguel Angel Carrera
Founder and CEO of AVS



Ronald Dekker
CEO - Demaco



Francesco Fantini
Sales manager Big Science Division - Fantini Sud S.p.A.



Pavel Hedbavny
CEO - Vakuum Praha



Rok Hrovatin
Senior BD advisor - Cosylab



Olivier Tasset - Maye
Sales Manager - Sigmaphi



Charles Mangeot
Senior R&D Engineer, Product Specialist, Piezoelectric Actuators - CTS Corporation



Ziad Melhem
Founder and CEO - Oxford Quantum Solutions Ltd



Michael Peiniger
Managing Director - Research-Instruments



François Sylla
Co-founder and CEO of SourceLAB



Josef Troxler
Business Development Manager, Ampegon & OCEM
Power Electronics