



I. FAST Annual meeting

19th April 2023

What is the I.FAST Challenge based innovation?



- During 10 days 4 teams of 6 students try to suggest innovative solutions based on accelerators technologies to address a challenge.
- On the last day they present their work in front of a jury at CERN.
- The target audience is students (and young professionals) sufficiently advanced in their studies but not yet too specialized.
 - Students in their 2nd cycle of studies (typically 3rd to 5th year of University), before the start of doctoral studies.

Accelerators for the environment

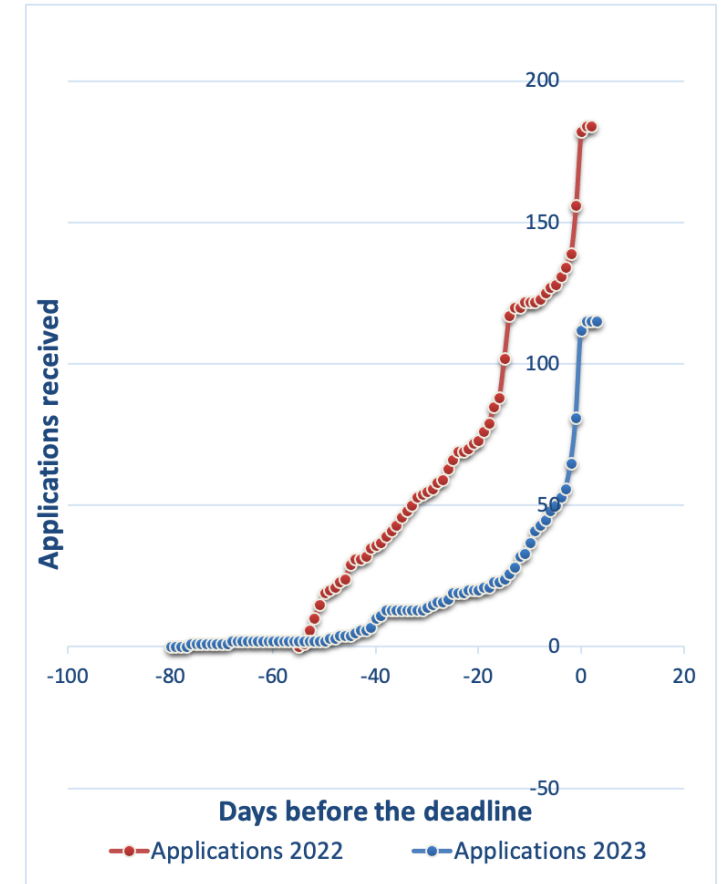


- The selected topic for 2022 was “**Accelerators for the environment**” (which covers both the maritime environment and the terrestrial environment).
- The topic for the 2023 CBI will be the same.
- A new topic will be selected by an experts panel for 2024.

Applications statistics



- 187 applications in 2022 and 115 in 2023
- Most applicants (>85%) are studying in I.FAST participant countries.
- Good gender balance in the applications.



Diversity

- Diversity is key to foster innovation
- The selection panel was careful to ensure diversity:
 - Diversity of country of study
 - Diversity of gender (aim for 50% for each gender)
 - Diversity of studies (Physics, Engineering, Environmental sciences, law, business, communication)



The teams: multidisciplinary



- We aim at having strongly multidisciplinary teams.
- Mix of « accelerator experts », physicists, engineers, environmental scientists, lawyers, communication students and business students.
- In 2023 we did not get enough application from law students.

The program



- The program is aimed at giving the students the opportunity to learn about accelerators and their applications
- 4 online seminars before the challenge + video session to get to know each other (all together and by team)
- 8 in person seminars with experts of accelerators and/or their environmental applications
- 2 days at CERN
- 2 “conferences”

Conferences / Cross-pitch events

- Twice during the challenge there is a “conference” or “cross-pitch event” gathering all participants.
- The first one is an opportunity for each participants to present the problem from the perspective of her/his field of studies.
- The second one is focussed on the solutions proposed by each team with constructive comments from the other teams
- We want constructive collaboration rather than competition between the teams.

Team dynamics



- Organisation within the teams was left to the teams to decide
- 4 teams, 4 different organisations!
- Some very democratic
- Some followed a leader
- Some had disagreements
- Exactly like in real scientific projects!

The final presentations

- On the last day each team gave a presentation in front of a jury made of senior scientist and knowledge transfer experts.
- The order in which the teams present is decided by a quiz on the previous seminars.
- In the afternoon there was an award ceremony with feedback from the Jury for each team.
- The jury was chaired by Frédéric Bordry. They were impressed by the quality of the projects.





Goal: Functionalisation of CNF with e-beam irradiation

IFAST CHALLENGE



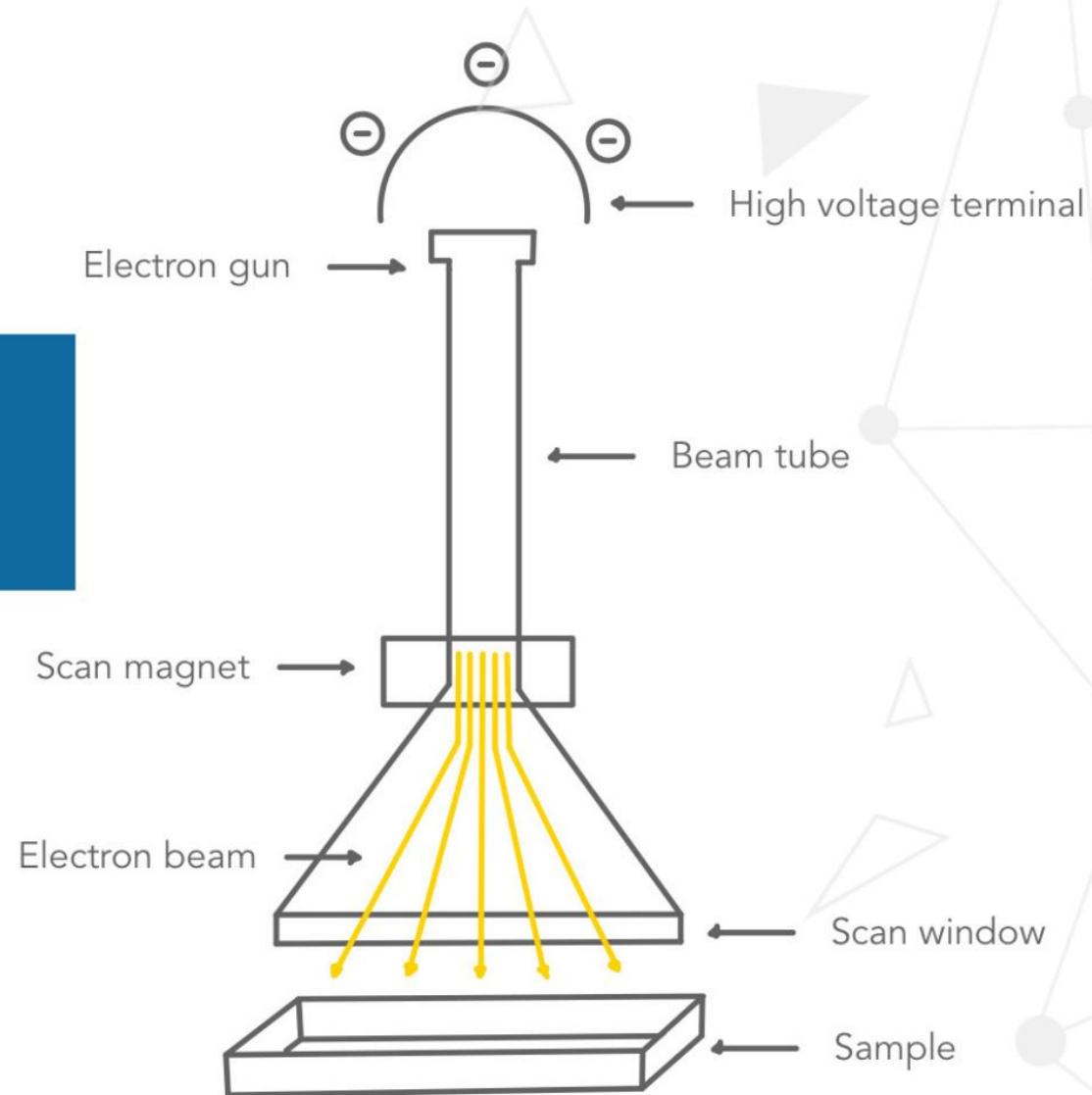
BEAM PARAMETERS

Energy: 3 MeV
Dose: 1000 kGy



SAMPLE

1.245 kg of CNF powder in aluminium pans



Linear accelerator commercially available through IONISOS (France)

Courtesy Team Fellowship of the accelerator ring - Durablade - Accelerating the Green Transition

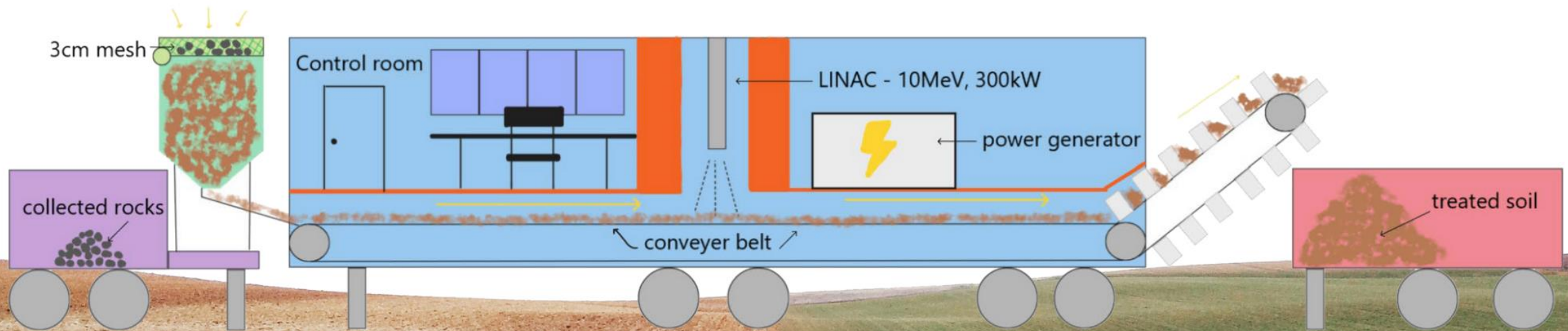
THE PLAN

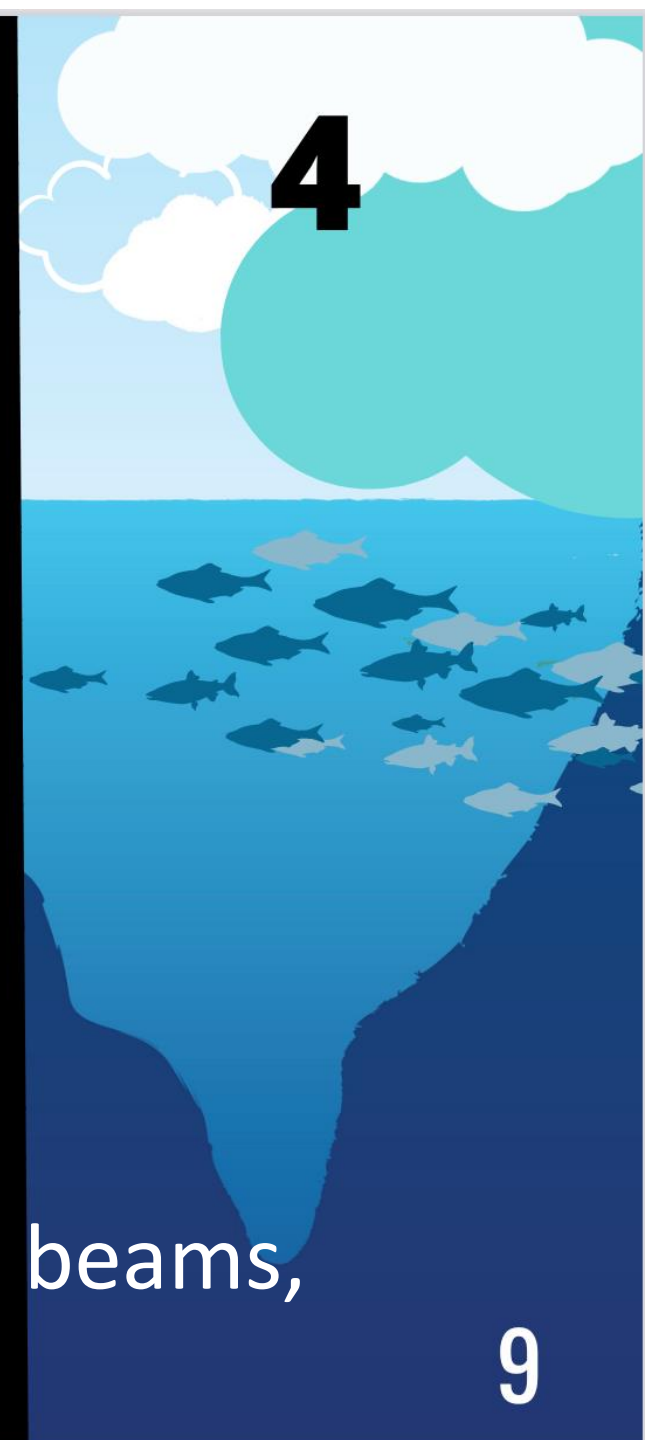
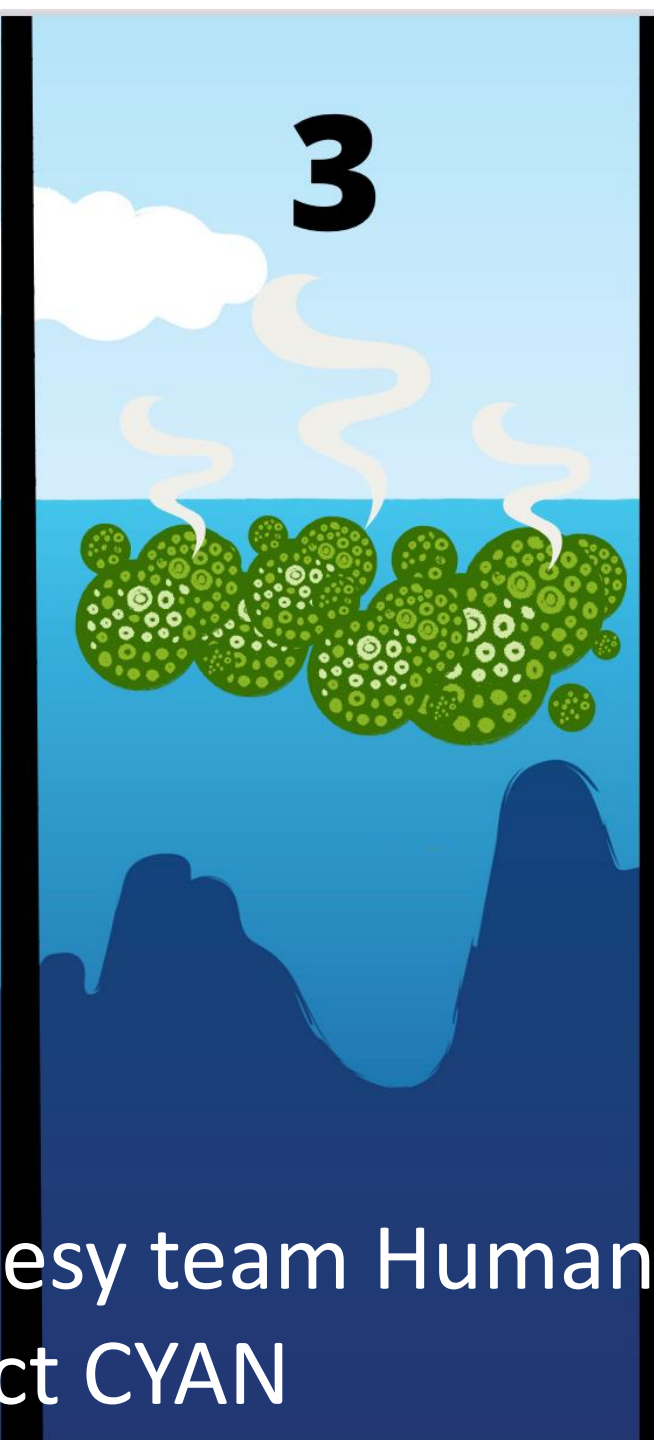
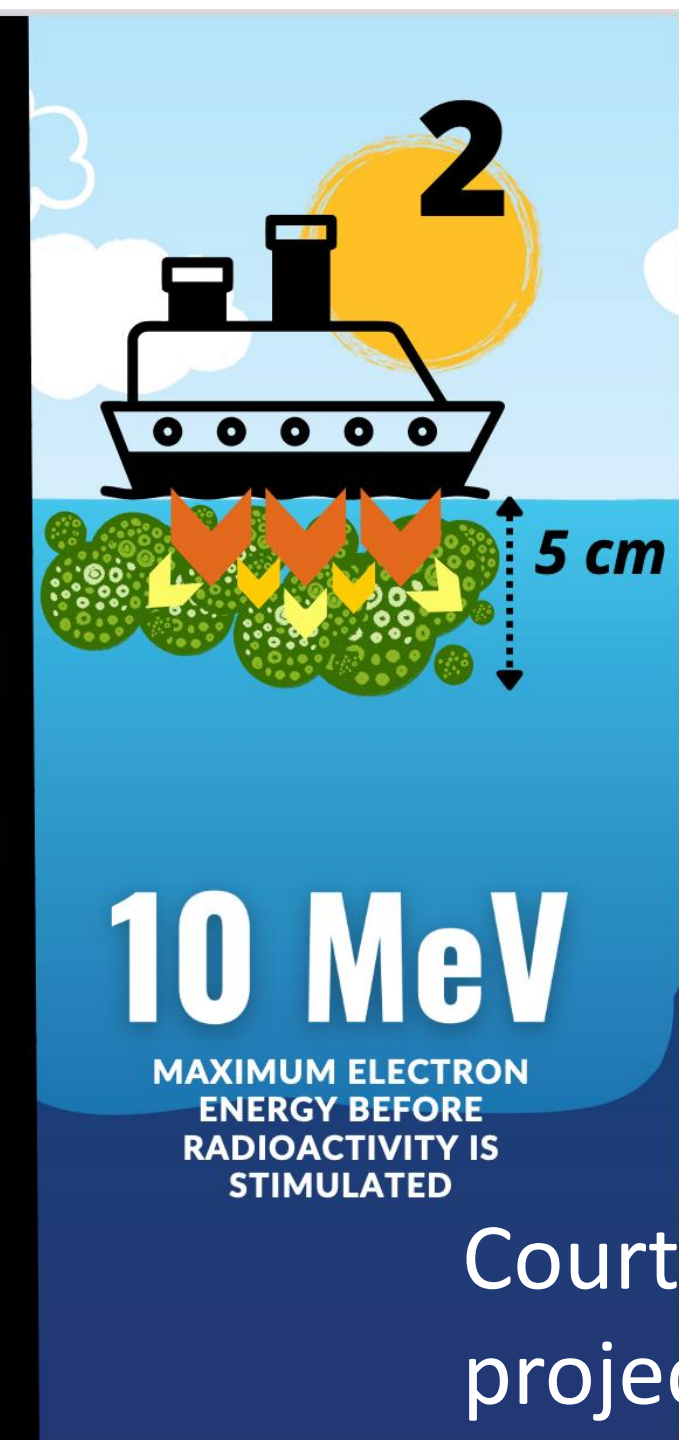
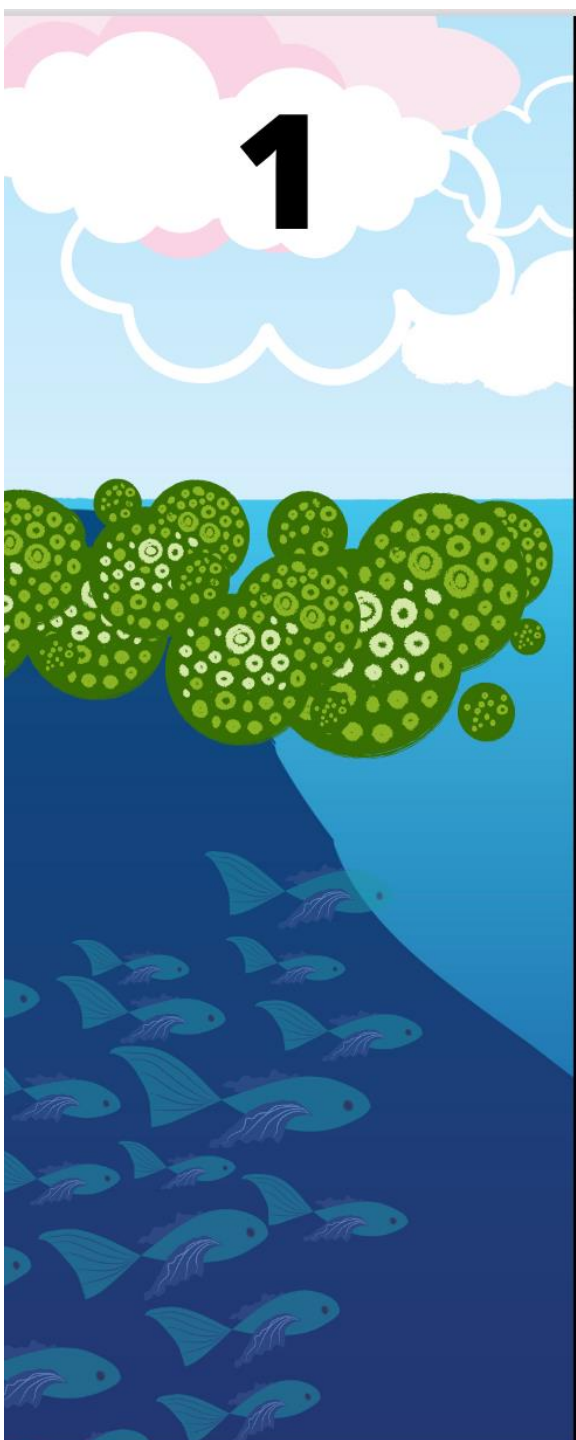


Courtesy Teams White Light - A.M.M.I.R.A : Accelerators for Marine Microplastics Investigation and Research Agency.

DEVELOPING TECHNOLOGY - THE SOIL SAVIOUR 2.0 & A PORTABLE PARTICLE ACCELERATOR

SOIL SAVIOUR 2.0





Courtesy team Human beams,
project CYAN

Students' Feedback

- Students feedback was very positive.

2) How do you rate your overall experience at I.FAST CBI?

Average: **9,4**/10

3) Did the challenge fulfil your expectations?

Average: **9,4**/10

4) How did you find the timetable in terms of volume of hours, number and length of sessions, balance between lectures and group work, etc.?

Average: **7,6**/10

5) How did you find the programme content in terms of balance between topics?

Average: **7,3**/10

6) Was the speakers' expertise sufficiently diverse to help you build your project?

Average: **7,6**/10

v. CROSS-PITCHING DAYS

1) Did you find the first cross-pitching session useful (Thursday 28 July)?

Average: **9,5**/10

2) Did you find the second cross-pitching session useful (Tuesday 2 August)?

Average: **9,7**/10



Outlook

- The I.FAST CBI is a unique opportunity to engage students and young professionals on particle accelerators and their applications.
- Feedback from 2022 is strongly positive.
- Good media coverage (accelerating news, Cordis, CERN Bulletin...).
- Cost is about 40k€/CBI.
- Looking for complementary funding (25k€) to organize a 3rd CBI in 2024 and ideas to fund it beyond 2024...
- Our challenge: make the 2023 CBI as successful as the 2022 edition.
- **Draft of Deliverable 2.2 submitted this week.**



iFAST



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Accelerating solutions for the environment



HOME

News > > Issue 38 > Topic: I.FAST (IFA)

Accelerators for the environment: Announcing I.FAST Challenge-Based Innovation programme 2022



Media coverage



HOME PAST ISSUES

News > > Issue 42 > Topic: I.FAST (IFA)

How can accelerators address environmental challenges? A 10-day event near Geneva for university students

CERN visit



PRESENTS
PROJECT CYAN



ACCELERATORS FOR THE ENVIRONMENT

10-DAY CHALLENGE @ ESI & CERN
25 JULY - 03 AUGUST 2023

Are you...

...a senior bachelor or master student
(all backgrounds)
...from a European university

...interested in making an impact

APPLY NOW ➔

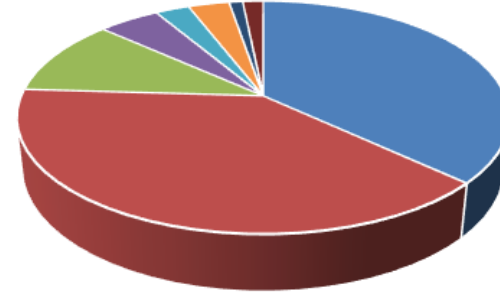
ifast-cbi.particle-accelerators.eu



Field of studies

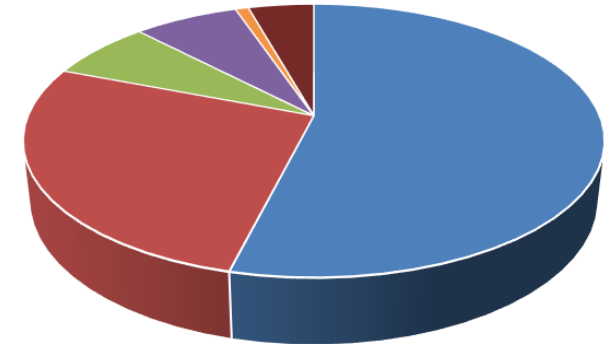


Field of study 2022



- Physics
- Engineering
- Environment/Bio
- Other science
- Business/Economics
- Law
- Medicine

Field of studies 2023



- Physics
- Engineering
- Environmental science
- Other scientific studies non listed above
- Business/Economics
- Law
- Medicine
- Marketing/Communication
- Other

Hosting

- The challenge takes place HERE at the European Scientific Institute (ESI) in Archamps near Geneva:
<https://www.esi-archamps.eu/>
- ESI has strong experience in hosting scientific schools
- The ESI team is taking care of the logistics, full board accommodation and travel arrangements for the participants.

