

USFCC HFSC-PED report

17 Oct 2024

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Rajagopalan

EOIs: get in on the ground floor

Dear FCC Colleagues,

The Physics Experiments and Detector pillar of the FCC feasibility study invites Expressions of Interest by institutes or groups of institutes to work on the development of sub-detector systems and full-detector concepts for FCC, to support and extend the technological developments pursued in the newly created DRD collaborations. The intent of this exercise is to bring people with common interest together, to highlight opportunities and also to showcase the breadth of international interests and technological capabilities to the ongoing European Strategy Update (ESU); no commitments are requested. For reference or inclusion in a planned combined FCC PED submission to the ESU, we would like to have short documents submitted by end of January 2025.

Two separate calls for the EOI, one for sub-detector systems and another for full-detector concepts are being issued and can be found attached.

In order to facilitate the organisation of efforts, we have prepared a Google sheet – accessible at <https://docs.google.com/spreadsheets/d/1P36xEBj121DKDokJfBZK1p322U2CiPAotQIBFISSA/edit?gid=0#gid=0> listing groups intending to prepare or contribute to an Eol, such that interested parties working on related topics can get in touch with each other. Entries in that list can be created via a web form <https://docs.google.com/forms/d/e/1FAIpQLScLHtwbNSoFFia57zR-AxjpY62yOndYFUmvRIsHuQap3gbH5Q/viewform>

We ask you to reflect your institutional interest in the Google Sheet as soon as possible, ideally by end-October. This would allow for identifying institutes with common interests and facilitating collaboration towards common EOIs. The groups would then work together with the intent of presenting the proposed EOIs during the FCC-PED workshop at CERN in January.

For more details, please find the attached Calls.

• Eol committee (Chairs: Felix, Guy, Srini)

- read and review the Eol's;
- put people with related Eol's together;
- get people who should have sent an Eol but did not yet to do so;
- follow up and send reminders if needed;
- get a bulleted list of all Eol's with short description (e.g., to add to the ESU submission and maybe even to the Feasibility Study report if time permits)

Please let your HFCC subgroup coordinator know if you submit to this or to learn about others intending to submit.

• Call for Eol (Sub-detectors, Detector Concepts)

- Sent out on Friday Oct. 11 to FCC-PED-FeasibilityStudy@cern.ch
- [Google form](#) for interested parties to sign up, declaring intent to prepare an EOI, all collected on a [google sheet](#) (7 Eol submitted incl. 4 “theoretical calculations”)
 - goal: foster cooperation between groups and facilitate common Eols
 - soft deadline mid November
- Deadline **Jan 31** for submission to PED
 - for editorial feedback and inclusion in combined FCC submission summary
- Deadline **Mar 31** for submission to ESU
 - submission of executive summary and attached Eols (optional)

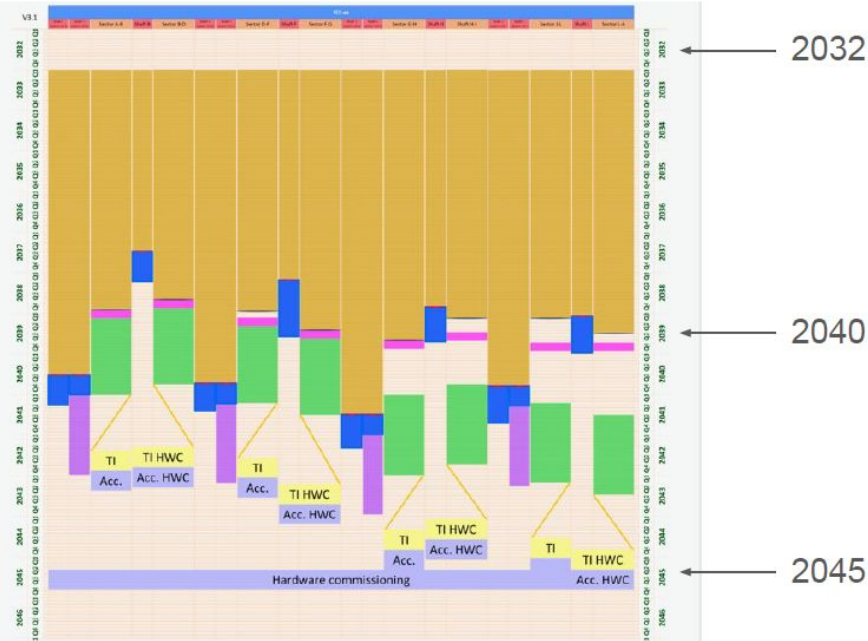
• Satellite meeting to FCC Physics Workshop (Jan 17)

- short presentations on upcoming Eols

Presented by
M. Benedikt
at the
coordination
meeting
Oct. 11

V3.1 Overall planning

- In the 8.3 years of installation, we have contingency for arc from point A to point G (between 1.5 years and 1 year) and the experiment installation (between 2 years and 1 year)



- Pink/Violet lines = experiment installation
- After discussion, the plot will be updated to bring the installation closer to the HW commissioning, to give more time to CE and for sub-detectors design and construction.

EU competitiveness report

On 9 September 2024, the 400-page European Union (EU) Competitiveness Report (*) was made public. The report urges EU to invest 750-800 billion euros annually "in order to close the economic and innovation gap with the US and China". The significance of this report for FCC is of a similar magnitude as the Joint USA -CERN statement of intent made last April (and appended below).

In this report, CERN is mentioned 19 times and FCC is mentioned three times. The most significant two excerpts read as follows:

1) Page 236

The CERN success story

The Large Hadron Collider has propelled CERN to global leadership in particle physics – a mantle that has shifted from the US to Europe – and it stands as CERN's flagship facility. One of CERN's most promising current projects, with significant scientific potential, is the construction of the Future Circular Collider (FCC): a 90-km ring designed initially for an electron collider and later for a hadron collider. Chinese authorities are also considering constructing a similar accelerator in China, recognising its scientific potential and its role in advancing cutting-edge technologies. If China were to win this race and its circular collider were to start working before CERN's, Europe would risk losing its leadership in particle physics, potentially jeopardising CERN's future.

2) Page 252

Invest in world-leading research and technological infrastructure

We have already discussed the remarkable returns from the creation of the European Organization for Nuclear Research (CERN) and emphasised that the future of CERN is at risk due to China's progress in emulating one of CERN's most promising current projects, the Future Circular Collider (FCC). Refinancing CERN and ensuring its continued global leadership in frontier research should be regarded as a top EU priority, given the objective of maintaining European prominence in this critical area of fundamental research, which is expected to generate significant business spillovers in the coming years.

https://commission.europa.eu/topics/strengthening-europe-competitiveness/eu-competitiveness-looking-ahead_en

Role of the European Commission

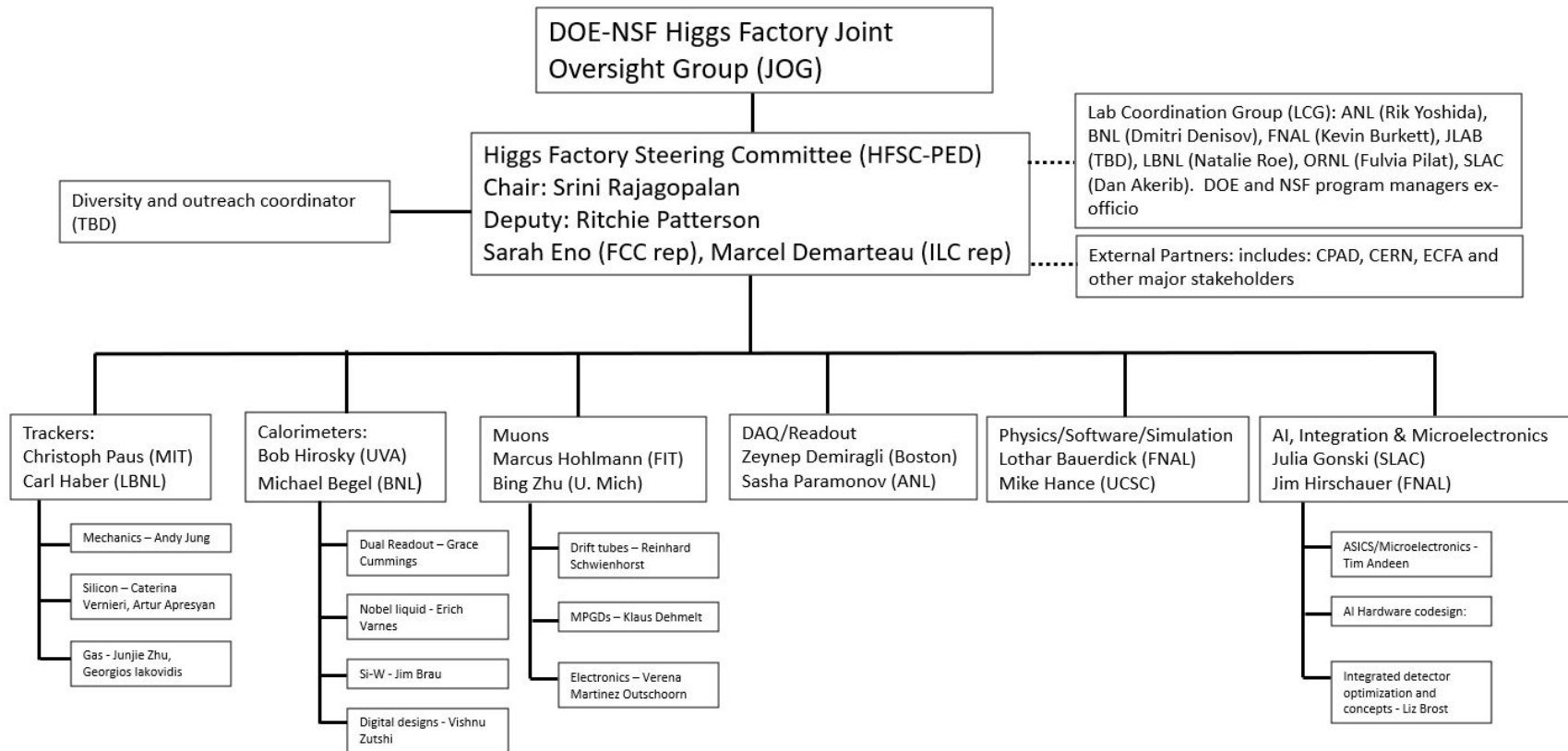
The European Commission is the executive body of the European Union. Its main roles include:

- proposing new laws and policies
- monitoring their implementation
- managing the EU budget

The Commission also ensures that EU policies and laws are correctly applied across Member States, negotiates international agreements on behalf of the EU, and allocates funding. Additionally, it represents the interests of the EU on the global stage, ensuring a coordinated approach among EU countries.



HFCC coordination



APS abstracts for FCC

Abstract submission for the joint March/April APS meeting is now open: <https://summit.aps.org/attend/abstracts> **The deadline is 25 October.** This is a great opportunity for your young people to give a talk and also expand their horizons beyond their own area and even beyond hep. It is a great opportunity to network with people in the March meeting on new materials, new tools, etc. The nuclear, accelerator, and cosmology communities are there as well. Talks on the EIC detectors should be very relevant to this community. The meeting is 16-20 March (21 March is just for the "March" part) in Anaheim California. More details can be found at: <https://www.aps.org/events/2025/joint-meeting>

If you have a young person working on FCC, please encourage them to submit an abstract. If you do submit an abstract, can you let the US member of the FCC speakers committee, Christoph Paus know? (paus@mit.edu, FCC-PED-SpeakersBuro@cern.ch)

Colloquium campaign

We need to build excitement for FCC not only within our community, but in the broader physics community. We encourage you to invite and give colloquia. Please find a data base at: <https://docs.google.com/spreadsheets/d/16ft0UeMhzG8V4hc8is0CKWHI54akNODqJufryauWkyl/edit?usp=sharing>

Also, can you please let the FCC speakers committee (FCC-PED-SpeakersBuro@cern.ch) and our rep Christoph Paus know if you are submitted an APS abstract related to FCC (<https://summit.aps.org/attend/abstracts>)?

The screenshot shows a Google Sheet titled "USFCC colloquium speakers". The sheet contains a list of speakers and their institutions, along with details of past colloquia/seminars.

USFCC colloquium speakers					
File Edit View Insert Format Data Tools Extensions Help					
Q Menus					
A1					
1	Please find here a list of people who have a prepared colloquium on FCC				
2	send an email to Sarah Eno eno@umd.edu to get your information added to this document or ask for edit permission. If you are a member of our community, I will approve.				
3	General colloquia available				
4	name	institution			
5					
6	Sarah Eno	University of Maryland			
7	Julia Gonski	SLAC			* have a colloquium ready on "future colliders" but could easily be specialized
8	Christoph Paus	MIT			* it is not ready-ready but can be made ready very quickly
9	Marc-André Pleier	BNL			* "Future Colliders and Detectors" colloquium
10	Saptaparna Bhattacharya	SMU			* Physics reach of the future electron-positron collider
11	Loukas Gouskos	Brown			* Colloquium/Seminars for future colliders
12	Caterina Vernieri	SLAC			* Colloquium/Seminars for future colliders
13	Andy Jung	Purdue			* Quantum Entanglement in top at LHC/HL and future colliders.
14	Bob Hirosky	U. Virginia			high resolution calorimeters and future colliders
15					
16	<i>feel free to insert rows above this</i>				
17	FCC seminars available				
18	Daniel Eivira	FNAL			* Seminar on the physicist at FCCee
19	Daniel Eivira	FNAL			* Measuring jets and mass with precision at the FCCee
20	Saptaparna Bhattacharya	SMU			* Tera Z run and MC production + proposal on FCCee calorimetry
21	Junjie Zhu	Michigan			* detector development
22	Andy Jung	Purdue			* detector mechanics & impact on physics
23	Bob Hirosky	U. Virginia			Dual readout calorimeters
24					
25	<i>feel free to insert rows above this</i>				
26	Self-reported colloquium/seminars given in the past				
27	speaker	date	location	colloquium or seminar?	link to slides
28	Julia Gonski	2 Nov 2023	Caltech	colloquium	https://www.youtube.com/watch?v=AMbFijzc21o
29	Julia Gonski	22 Feb 2024	Nebraska	colloquium	
30	Marc-André Pleier	17 Sep 2024	Brandeis	colloquium	
31	Julia Gonski	18 Nov 2024	MIT	colloquium	
32	Julia Gonski	19 Nov 2024	Boston University	colloquium	
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Upcoming FCC meetings

- HFCC workshop Dec. 19-20 at SLAC, after the USLUA meeting. Please register at <https://indico.cern.ch/event/1459069/>
- Next USFCC: TBD (wait for announcement)
- FCC Physics week. 13-17 Jan At CERN. Free for students.
- FCC week. 19-23 May Vienna

Technical focus

Please nominate yourself to give a short “technical focus” talk at an upcoming USFCC meeting by emailing Sarah Eno eno@umd.edu for when USFCC meetings resume.

We have a web page: us-fcc.web.cern.ch

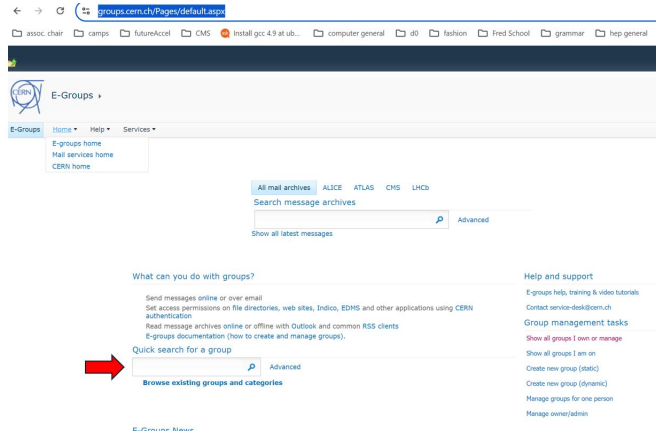
The screenshot shows a web browser displaying the page `us-fcc.web.cern.ch`. The browser's address bar and tabs are visible at the top. Below the browser, a Drupal-style navigation bar is present with a 'Manage' menu and a 'Shortcuts' section. The main navigation menu includes 'ORGANIZATION', 'WORKING GROUPS', 'EVENTS', 'RESOURCES', and 'CONTACT US'. The page features the FCC logo and a large blue banner with the heading 'US Future Circular Collider Collaboration'. Below the heading, a sub-heading reads: 'Use the pull down menus to learn about US contributions to the FCC via our organization, working groups, and events.' A secondary navigation bar below the heading contains the options 'View', 'Edit', 'Delete', 'Manage display', 'Revisions', and 'Translate'.

Send suggested changes to Enno, Palmer and Lee (eno@umd.edu, capalmer@umd.edu, jakedlee@umd.edu)

reminder:

Sign up for USFCC mailing lists as follows:

- Go to <https://groups.cern.ch/Pages/default.aspx>
- In the box with the red arrow pointing towards it, type us-fcc. **Also type us-hfcc**



Sign up for FCC mailing lists as described at: <https://fcc-ped.web.cern.ch/###>