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# FCC-UK: status and discussion of future organisation

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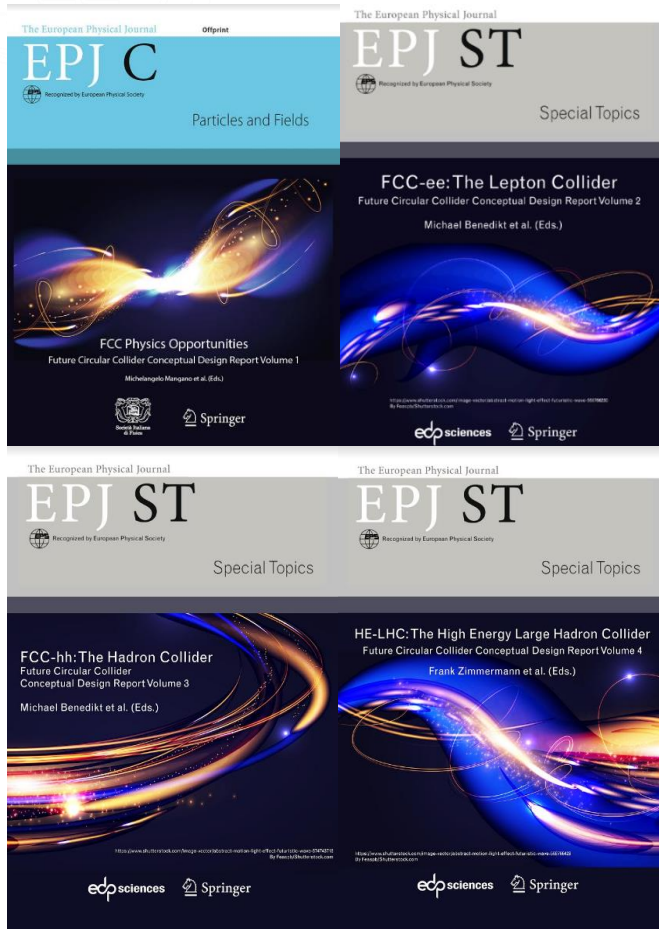
FCC-UK meeting, 18/5/21

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# FCC – story so far



## FCC Conceptual Design Reports

- Vol 1 Physics, Vol 2 FCC-ee, Vol 3 FCC-hh & FCC-eh, Vol 4 HE-LHC
- CDRs published in **European Physical Journal C (Vol 1) and ST (Vol 2 – 4)**

[EPJ C 79, 6 \(2019\) 474](#) , [EPJ ST 228, 2 \(2019\) 261](#) ,

[EPJ ST 228, 4 \(2019\) 755](#) , [EPJ ST 228, 5 \(2019\) 1109](#)

## Summary documents for EPPSU SG

- FCC-integral, FCC-ee, FCC-hh, HE-LHC
- Accessible on <http://fcc-cdr.web.cern.ch/>

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# ESPPU recommendation

“Europe, together with its international partners, should investigate the **technical and financial feasibility of a future hadron collider at CERN with a centre-of-mass energy of at least 100 TeV and with an electron-positron Higgs and electroweak factory as a possible first stage.** Such a feasibility study of the colliders and related infrastructure should be established as a global endeavour and be completed on the timescale of the next Strategy update.”

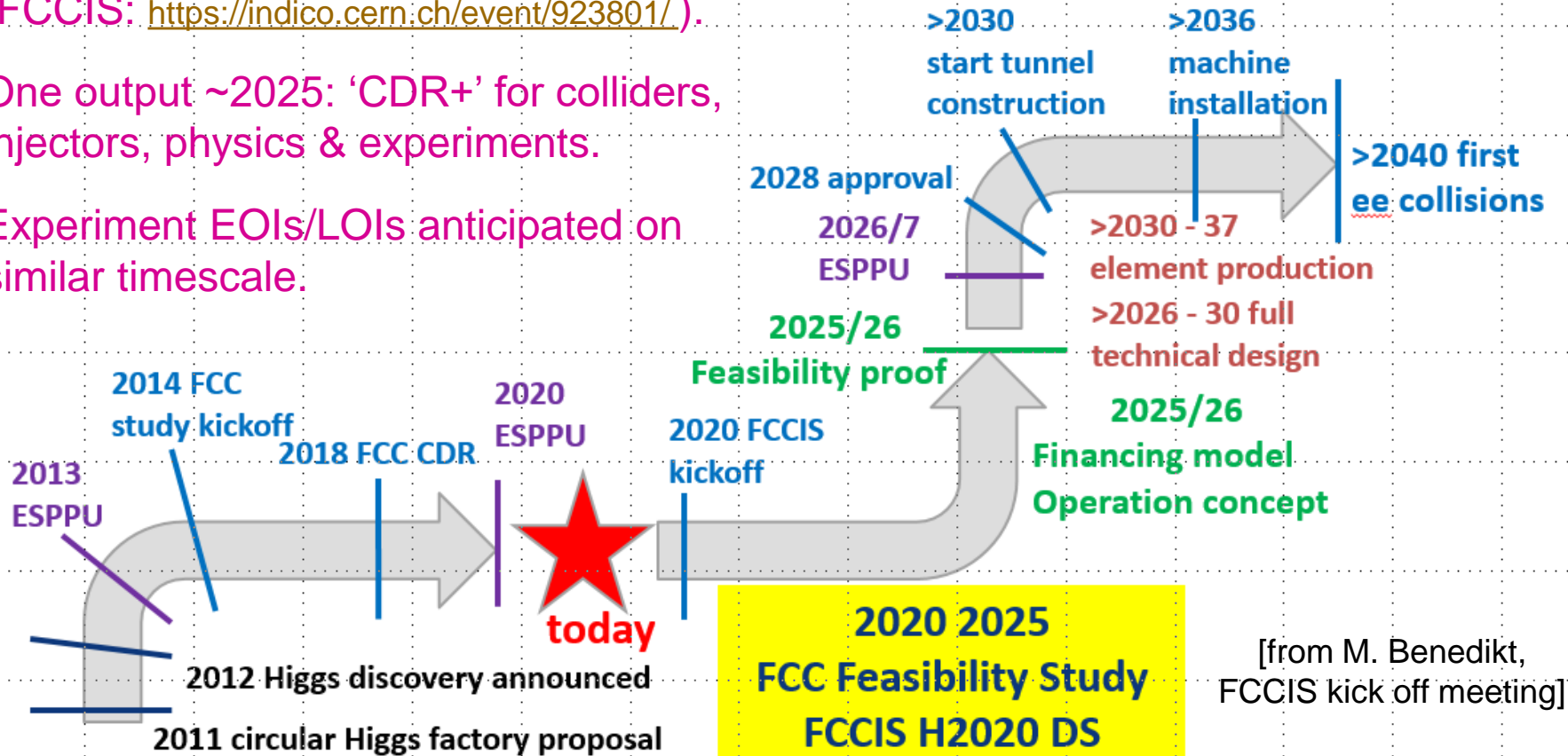
# FCC – next steps (already ongoing)

Feasibility study to be delivered end 2025, as input to ESPP update.

Work underway, partly under banner of EU-funded H2020 ‘FCC Innovation Study’ (FCCIS: <https://indico.cern.ch/event/923801/>).

One output ~2025: ‘CDR+’ for colliders, injectors, physics & experiments.

Experiment EOIs/LOIs anticipated on similar timescale.

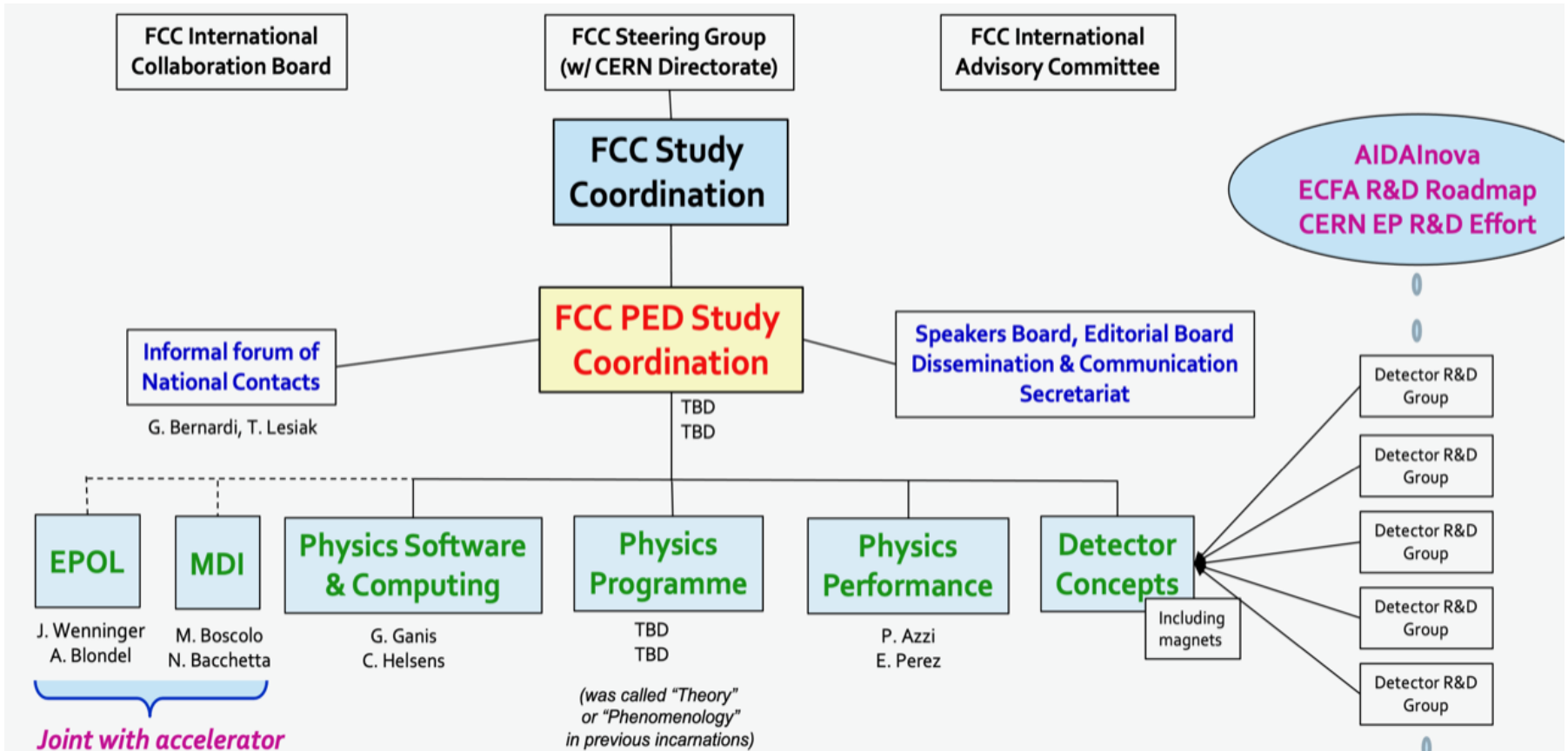


[from M. Benedikt, FCCIS kick off meeting]

Note that CERN very much considers FCC-ee / FCC-hh (and possible FCC-eh) as part of package (‘integrated programme’). External opinions may differ...

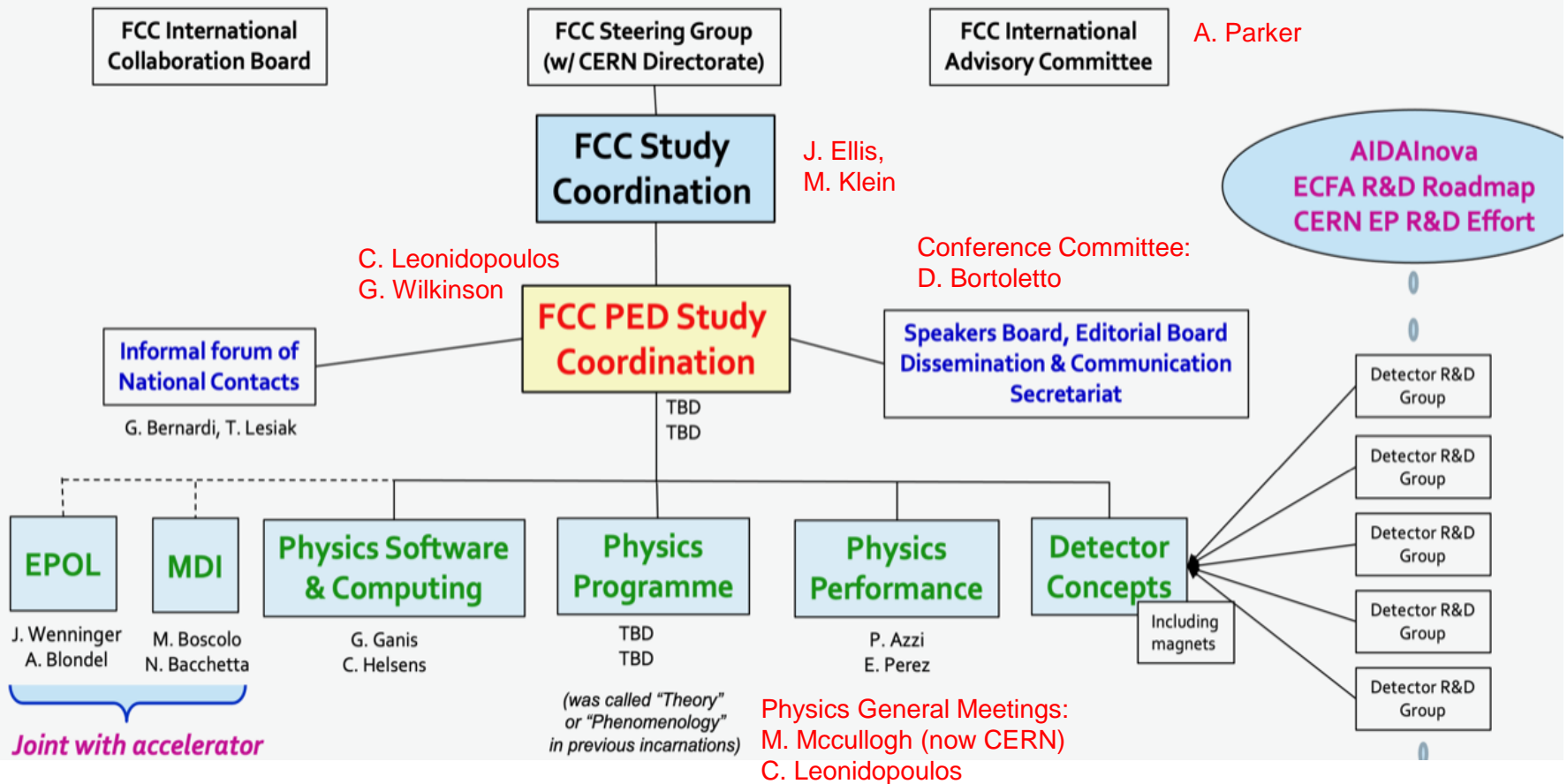
# FCC organisation

(with focus on experiments)



# FCC organisation - UK involvement

(with focus on experiments) (not showing machine activities)



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# FCC: forthcoming events

FCC Week 2021, 28 June – 2 July: <https://indico.cern.ch/event/995850/overview>

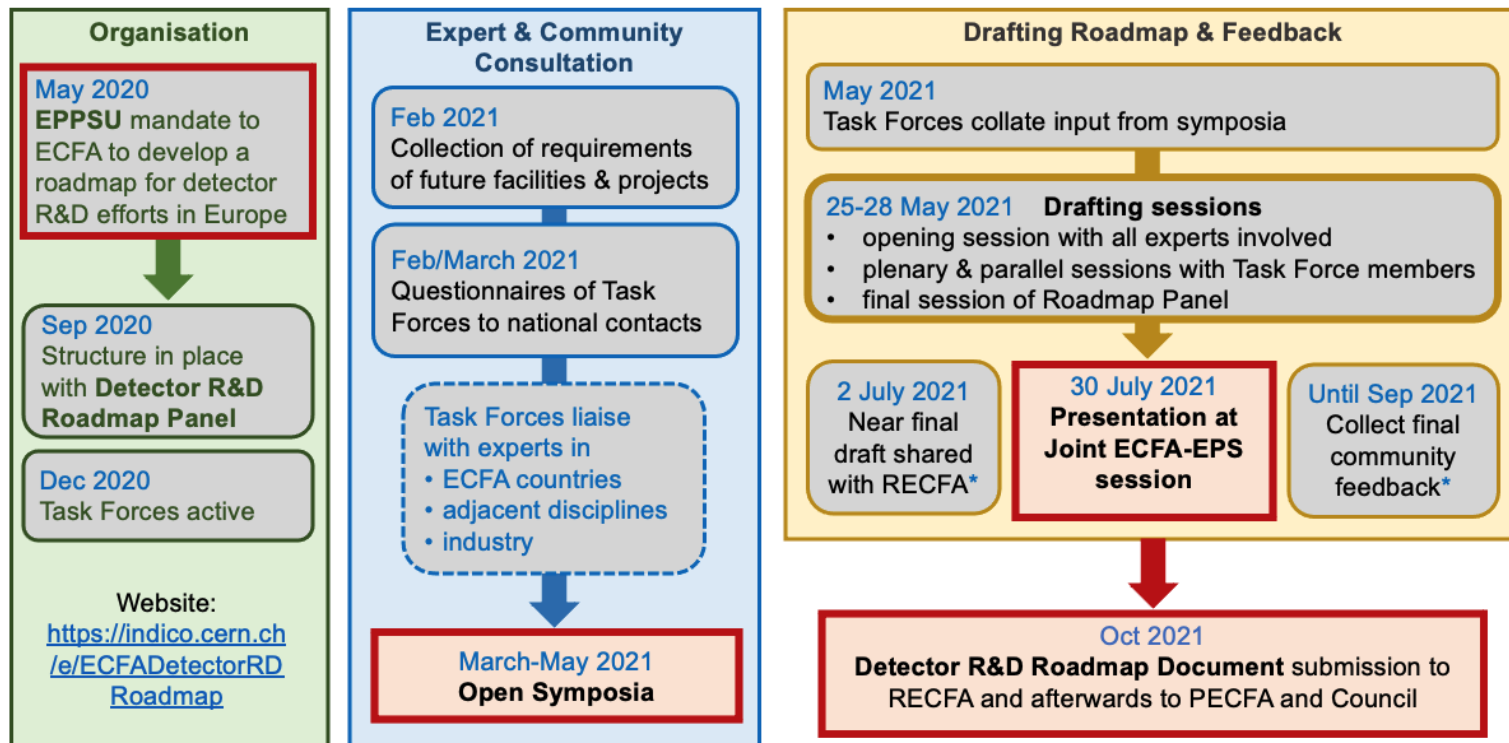
FCC Physics, Experiments and Detectors workshop to be hosted in Liverpool (covid willing), late January or early February 2022.



# Ongoing/starting related activities

ECFA detector R&D roadmap: <https://indico.cern.ch/event/957057/>

## ECFA Detector R&D Roadmap Process



\*community feedback via RECFA delegates and National Contacts

# Ongoing/starting related activities

## ECFA workshops on $e^+e^-$ Higgs/EW/top factory

“[ECFA] has decided to organise a series of workshops on physics studies, experiment design and detector technologies towards a future electron-positron Higgs/top/electroweak factory. The aim is to bring together the efforts of various  $e^+e^-$  projects, to share challenges and expertise, to explore synergies and to respond coherently to this high-priority strategy item.”

Karl Jakobs, ECFA chair, May 2021

WG 1: Physics Potential

WG 2: Physics Analysis Methods

WG 3: Detector R&D

Kick-off meeting, afternoon of Friday 18/6/21: <https://indico.cern.ch/event/1033941/>

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# FCC-UK: story so far

Group established with contact person at each institute.

Contact-person mailing list (CERN e-groups): [fcc-uk-contacts](#) and [fcc-uk](#)

11/09/20: all-day meeting concerning UK involvement in the FCC project

<https://conference.ippp.dur.ac.uk/event/933/overview>

Occasion revealed significant interest, and in some cases plenty of ongoing work, in detector studies, machine and theory, from UK community.

Several documents prepared for PPAP roadmap (attached to agenda page) on FCC as a whole, FCC-ee, FCC-hh, FCC-eh and FCC-ee resource estimates. Roadmap discussions ongoing, with aim to complete this summer.

Above coordinated by DB, CL, IS & GW – time has now come to put in place a organisational structure, constructed according to wishes of UK community. Desirable to achieve this within the next couple of months.

# FCC-UK organisation: a straw-man proposal

Appoint two FCC-UK coordinators, with a mandate of 2-3 years, with following terms-of-reference:

- Oversee UK activities and interests in all FCC projects (-ee, -hh and -eh).
- Function as contact point for STFC bodies, e.g. PPAP, and to coordinate future funding bids.
- Communicate with contact persons in each institute, and make more general announcements to fcc-uk mailing list.
- Ensure good communication between UK experimental, theoretical & machine activities.
- Organise meetings for UK community and maintain up-to-date webpage.
- Close relationship with FCC coordination at CERN, and with related activities in UK, e.g. LCUK (linear collider).

When above is agreed, and written down, we suggest convening a small group (3-4 people) of senior colleagues. This group will then invite nominations, after which there will be a vote by the institute contact persons (one vote per institute).

Discuss more today, with follow-up on fcc-uk-contacts list.

# FCC-UK: further considerations

## Further points for discussion:

- In the near term all  $e^+e^-$  detector R&D activities need to proceed with both FCC-ee and ILC applications in mind, even though requirements are not completely identical. Furthermore, CEPC cannot be ignored, and is presumably an equally valid application for these studies.
- Appropriate level of UK engagement in FCC-hh activities (see *e.g.* “aggressive ‘straw person’ scenario” in FCC-hh roadmap submission).
- How to engage industry ?
- Skills training.
- Dialogue with wider (*i.e.* non particle physics) community in UK and beyond.
- Best time for and scope of next UK meeting.