

Particle Physics Advisory Panel Report Town Meeting 2019

Roger Jones, Lancaster
on behalf of the PPAP

9th March 2019

Outline

- Introduction
- PPAP membership
- Recent activities
- Near future

Primary activities

- Activity occurs in bursts otherwise we meet every few months
- Interact with community
 - Annual community meeting
 - Information exchange with Pis
 - Encourage community to notify us of new initiatives
- Respond to request for information from STFC
- Respond to calls for input from government
- Keep Particle Physics Roadmap up to date
 - We do not prioritize or tension

Reports Reports Reports

Five most relevant science advisory panels

- Particle Physics Advisory Panel
- Nuclear Physics Advisory Panel
- Particle Astrophysics Advisory Panel
- Astronomy Advisory Panel
- Solar System Advisory Panel

Plus there are others like the Computing Advisory Panel

“The purpose of the Advisory Panel is to provide a link between Science Board and the community, and represent the needs of the community to STFC.”

<http://www.stfc.ac.uk/about-us/how-we-are-governed/advisory-boards-panels-committees/particle-physics-advisory-panel/>

Membership

Attempts expertise across all PP areas.

Silvia Pascoli (IPPP)

Veronique Boisvert (RHUL)

Jo Cole (Brunel)

Roger Jones (Lancaster) *Chair*

Matthew Malek (Sheffield)

Matthew Needham (Edinburgh)

Pawel Majewski (RAL)

Peter Ratoff (Cockcroft)

Some rotation each year. Consider volunteering for this role.

Thanks to outgoing members and particularly to Claire Shepherd-Themistocleous who stepped down as chair at the end of 2018 after serving on the panel since 2012

Recent Activities

- Unusually, two community meetings in 2018, driven by the European Strategy Refresh, Evaluation and Roadmap update
 - 2 days July 2018 @ RAL
 - 2 days Sept 2018 @ Birmingham
- Also put together the response to the 'Big Ideas' call from Mark Thomson
- Comment on the astroparticle programme evaluation input document
- Report to SB – good engagement, though we would appreciate more feedback on documents we prepare
- PP Programme Evaluation Panel
- PP Roadmap Update

Ongoing Activities

- Continued Engagement with European Strategy Review
- Further Input to the Particle Physics Programme Evaluation Panel as required
- Update to Science Board in late 2019
- Further input to the UKRI Infrastructure Roadmap
- Annual Community Meeting
 - Dates to be confirmed
 - Given the meeting in July, we suggest September is the right time

Community Meeting – July 2018, Scene Setting

PPAP Community Meeting 2018
from Monday, 16 July 2018 (10:30) to Tuesday, 17 July 2018 (18:05)
Rutherford Appleton Laboratory (Pickavance Lecture Theatre)

Legend: Sessions / Talks / Breaks

16 Jul 2018		17 Jul 2018	
AM	10:30 Coffee (Pickavance Lecture Theatre)	09:00 Flavour Physics - Lars Eklund (University of Glasgow) (until 10:20) (Pickavance Lecture Theatre)	
	11:00 Introduction - Claire Shepherd-Themistocleous (RAL) (Pickavance Lecture Theatre) PPAP_meeting_intro.pptx	09:00 LHCb - Matt Kenzie (University of Cambridge) (Pickavance Lecture Theatre) PPAP2018.pdf	
	11:10 UK input to the European Strategy - Claire Shepherd-Themistocleous (RAL) (until 12:35) (Pickavance Lecture Theatre) European-strategyforPP-2013-1.pdf euro_strat_discussion_v1.pptx PPAP_CERNstrategy_July2012_v9-1.docx	09:30 BESIII - Sneha Malde (Oxford University) (Pickavance Lecture Theatre) BESIII-PPAP.pdf	
	11:10 Report from the Durham meeting - Sinead Farrington (University of Warwick) (Pickavance Lecture Theatre) sinead_ppap_160718.pptx	09:45 NA62 - Evgenii Goudzovski (University of Birmingham) (Pickavance Lecture Theatre) goudzovski_170718.pdf	
	11:40 Report from PAAP - Chamkaur Ghag (UCL) (Pickavance Lecture Theatre) PAAP Update	10:05 g-2 - Gavin Hesketh (UCL) (Pickavance Lecture Theatre) gavin_gm2_PPAP_2018.pdf	
	11:55 Future of neutrino physics and non-accelerator experiments - Dave Wark (RAL/Oxford) (Pickavance Lecture Theatre) dlw_Neutrino_intro_2018.pptx	10:20 Coffee (Pickavance Lecture Theatre)	
	12:15 Future accelerator options - Ian Shipsey (Oxford University) (Pickavance Lecture Theatre) Energy-frontier-PPAP2018-shipsey-final.pdf Energy-frontier-PPAP2018-shipsey-v2.pdf strategymk16718.pdf	10:40 Flavour Physics - Veronique Boisvert (Royal Holloway University of London) (until 12:00) (Pickavance Lecture Theatre)	
		10:40 Lepton Flavour Violation - Joel Goldstein (University of Bristol) (Pickavance Lecture Theatre) LFV_PPAP18.pdf	
		11:00 n/EDM - Dr Clark Griffith (University of Sussex) (Pickavance Lecture Theatre) Griffith-EDMs-PPAP2018.pdf	
		11:20 SHP - Mario Campanelli (UCL) (Pickavance Lecture Theatre) ShipPPAP2018.pdf	
		11:35 Discussion (Pickavance Lecture Theatre)	
PM	12:40 Lunch (Pickavance Lecture Theatre)	12:00 Theory - Steven Abel (PPPP) (until 12:30) (Pickavance Lecture Theatre)	
	13:30 UK input to the European Strategy - Claire Shepherd-Themistocleous (RAL) (until 15:10) (Pickavance Lecture Theatre) European-strategyforPP-2013-1.pdf euro_strat_discussion_v1.pptx PPAP_CERNstrategy_July2012_v9-1.docx	12:00 Report from the Theory Review - Christine Davies (University of Glasgow) (Pickavance Lecture Theatre) davies_PPT_PPAP.pdf	
	15:10 Energy frontier - Jo Cole (Brunel University) (until 16:10) (Pickavance Lecture Theatre)	12:30 Lunch (Pickavance Lecture Theatre)	
	15:10 ATLAS - Dr Gabriel Facini (University College London) Dr Gabriel Facini (UCL) (Pickavance Lecture Theatre) 20180716_ATLASPPAP.pdf	13:30 Neutrinos and non-accelerator physics (until 15:10) (Pickavance Lecture Theatre)	
	15:35 CMS - Prof. Gavin Davies (Imperial College London) (Pickavance Lecture Theatre) CMSUK-PPAP18.pdf	13:30 T2K and Hyper-K - Niel McCauley (Pickavance Lecture Theatre) T2K & HK PPAP.pdf	
	15:55 Discussion (Pickavance Lecture Theatre)	13:56 DUNE, SBL and NOVA - Alfons Weber (University of Oxford & STFC/RAL) (Pickavance Lecture Theatre) DUNE_PPAP_2018July.pdf DUNE_PPAP_2018July.pptx	
	16:10 Coffee (Pickavance Lecture Theatre)	14:22 Neutrinoless double-beta decays - Justin Evans (University of Manchester) (Pickavance Lecture Theatre) 2018-07-PPRPTownMeeting.pdf	
	16:30 Reports from STFC - Claire Shepherd-Themistocleous (RAL) (until 17:30) (Pickavance Lecture Theatre)	14:43 Dark Matter - Chamkaur Ghag (UCL) (Pickavance Lecture Theatre) Dark Matter	
	16:30 Report from STFC - Mark Thomson (Cambridge) (Pickavance Lecture Theatre) PPAP-July-2018.pdf	15:10 Coffee (Pickavance Lecture Theatre)	
	17:00 Report from SB - Sean Freeman (Pickavance Lecture Theatre) SBUpdate_PPAP_July2018_Final2.pptx	15:30 Programmatic Review (until 16:30) (Pickavance Lecture Theatre) Blg_Ideas.pptx	

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Community Meeting – Sept 2018, drilling down

European Strategy UK discussion
from Thursday, 20 September 2018 (10:30) to Friday, 21 September 2018 (18:30)
B'ham (Physics West Lecture Theatre (W117))

20 Sep 2018

Time	Session	Location
10:30	Energy frontier - the next accelerator (until 18:00)	Physics West Lecture Theatre (W117)
10:30	--- Coffee ---	
11:00	Introduction	Physics West Lecture Theatre (W117)
11:15	Q&A with Oliver Brunning on CERN's Collider options	Physics West Lecture Theatre (W117)
11:45	Overview of future colliders - Bill Murray (RAL / Warwick University)	Physics West Lecture Theatre (W117)
12:45	--- Lunch ---	
13:45	Overview of Linear Colliders - Prof. Phil Burrows (Oxford)	Physics West Lecture Theatre (W117)
14:30	Discussion	Physics West Lecture Theatre (W117)
17:30	Summary of discussion	Physics West Lecture Theatre (W117)

21 Sep 2018

Time	Session	Location
09:30	Flavour and non-accelerator (until 12:30)	Physics West Lecture Theatre (W117)
09:30	Introduction	Physics West Lecture Theatre (W117)
09:40	Flavour: Theory Perspective - Sebastian Jaeger (Sussex U)	Physics West Lecture Theatre (W117)
10:20	Physics Beyond Colliders - Dr Gaia Lanfranchi	Physics West Lecture Theatre (W117)
11:20	Discussion Flavour	Physics West Lecture Theatre (W117)
12:30	--- Lunch ---	
13:30	Flavour and non-accelerator (until 17:30)	Physics West Lecture Theatre (W117)
13:30	Neutrino discussion	Physics West Lecture Theatre (W117)
14:30	Dark Matter discussion	Physics West Lecture Theatre (W117)
15:30	--- Tea ---	
15:50	Non-accelerator general discussion	Physics West Lecture Theatre (W117)
16:30	Detector R&D	Physics West Lecture Theatre (W117)

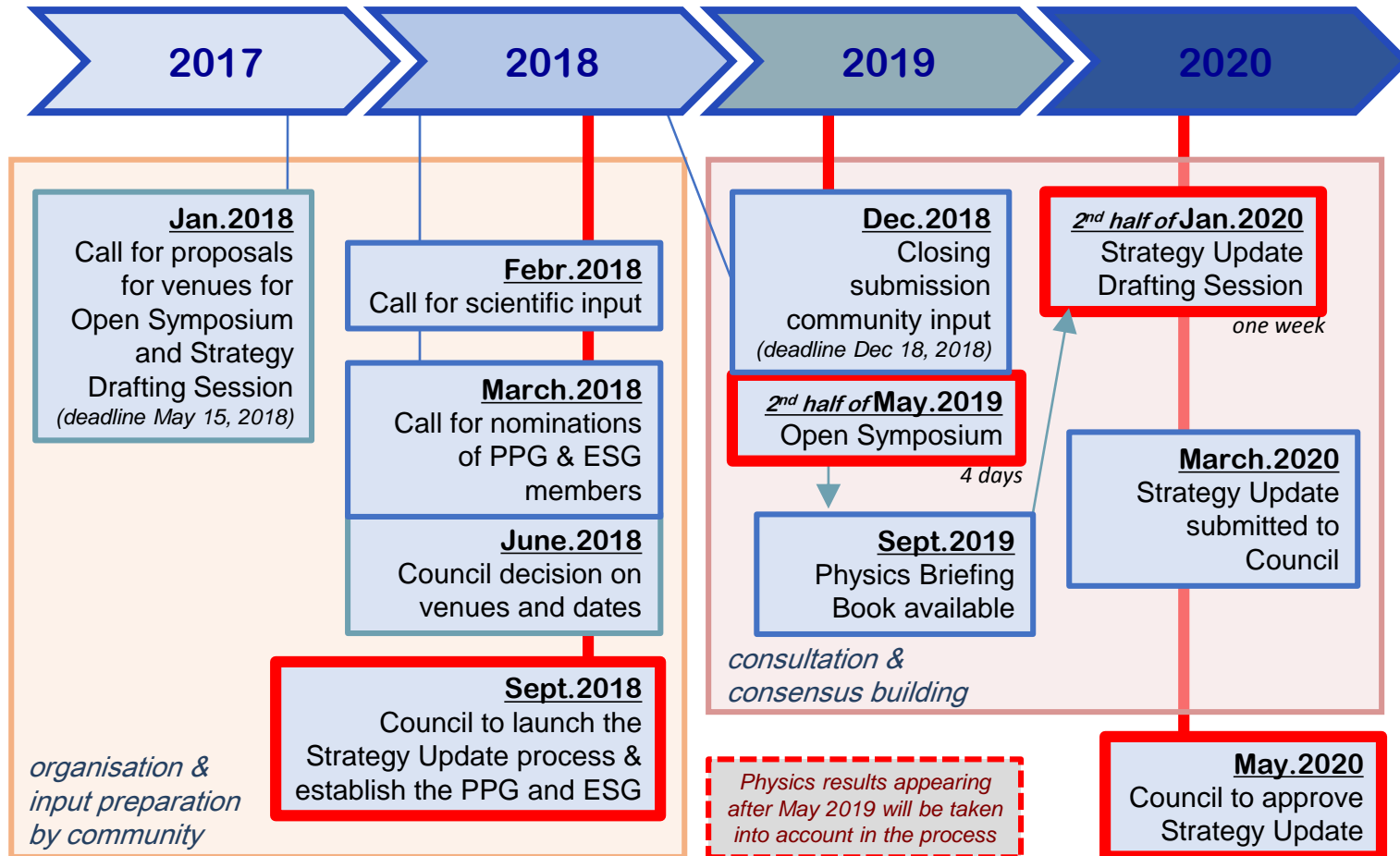
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European Particle Physics Strategy Update

- Aims to do ‘that it says on the tin’.
- Two major European events:
 - “Open Symposium” - May 2019
 - Physics Preparatory Group (PPG) produce “Briefing Book”
 - Given to Physics Preparatory Group (PPG)
 - “Strategy Drafting Session”. January 2020
 - In the UK, there is the UK PP COMMUNITY MEETING: FROM OPEN SYMPOSIUM TO DRAFTING SESSION 1 July 2019, IoP, 37
Caledonian Rd
- Written inputs were submitted in December 2018.

European Particle Physics Strategy Update



Physics Preparatory Group (PPG) composition, adopted by Council, December 2013:

- The Strategy Secretary (acting as Chairperson),
- four members appointed by the Council on the recommendation of the SPC,
- four members appointed by the Council on the recommendation of ECFA,
- the SPC Chairperson,
- the ECFA Chairperson,
- the Chairperson of the European Laboratory Directors' meeting,
- one representative appointed by CERN,
- one representative from Asia appointed by the respective regional representatives in ICFA,
- one representative from the Americas appointed by the respective regional representatives in ICFA.

Responsible with organising the Open Symposium and to deliver to the European Strategy Group (ESG) a Physics Briefing book.

Roadmap Update

- PPAP formulates update to Roadmap.
 - Input from:
 - The two community meetings
 - Responses to drafts (including the strategy drafts) to the community
 - Exchanges with projects
 - Thanks for the feedback, even after the deadline ;-)
- Reminder: the PPAP maps, it does not prioritize.
- Reminder: this is a roadmap, not an OS map.
 - The discussion of each project is brief and forward-looking. It is not the occasion to give chapter and verse on projects and their history
 - Much of the final edit is rebalancing the level and style of the sections

Particle Physics Programme Evaluation

Purpose:

“Look at the portfolio and science strategy to define a balanced programme of excellent science within a realistic financial planning envelope for each scientific discipline.”

- Particle Physics Evaluation due to begin in Autumn 2018.
 - “Process duration approx. 6 months”
- PPAP update the Roadmap supports this process
- Document as input 3 January 2019
- Projects (e.g. ATLAS, CMS...) also provided written input
- Presentation and attendance 29 January 2019
- Further attendance possible

UKRI Infrastructure Roadmap

- Chairs of APs invited to consultation meeting at the IoP.
 - <https://www.stfc.ac.uk/research/science-challenges/>

- Discussion of community needs.
 - Meeting 29th January, *after* interim report had been signed-off by Minister
 - Inputs:
 - List of large infrastructure needs expanded from v short list in interim report
 - Computing and eInfrastructure concerns are cross-cutting
 - Alignment of EPSRC and STFC criteria for selection

- Process is expected to finalize the roadmap by the summer.

PPAP Concerns

- Comments and concerns
 - We are now broad (11 STFC funded programmes, up from 7)
 - Shows creativity and vigor
 - But can it all be sustained?
 - Core funding! Expanding programme by seizing opportunities will make the pressure on the core worse
 - Loss of senior research staff and RAs at universities and in PPD.
 - Increases concern over keeping skills pipeline filled as a consequences of losses.
 - At the risk of update fatigue.....
 - Consequences of the CG will have profound effects on the roadmap
 - Believe an update in ~1 year is appropriate

Future

- Community Meeting September (dates soon)
 - Please try to engage, and not just for 'your' day!
- Update to Roadmap (final circulation ~now)
- Continued engagement with European Strategy
- Reaction to output of the Particle Physics Programme Evaluation

Questions?

European Strategy Group (ESG) composition, adopted by Council, December 2013:

- the Strategy Secretary (acting as Chairperson),
- one representative appointed by each CERN Member State,
- one representative for each of the Laboratories participating in the major European Laboratory Directors' meeting, including its Chairperson,
- the CERN Director-General,
- the SPC Chairperson,
- the ECFA Chairperson.

Responsible to deliver a draft
Strategy Update to Council.

Invited:

- the President of the CERN Council,
- one representative from each of the Associate Member States,
- one representative from each Observer State,
- one representative from the European Commission,
- the Chairpersons of ApPEC, FALC, ESFRI and NuPECC,
- the members of the Physics Preparatory Group.

Key points in answers

- Programme broader than at last programmatic review.
General feeling this is at right level now.
- Broadening has happened at cost to existing programme.
- Concern about what flat cash will mean for programme.

Exploit significant investments to the full, while keeping a stake in the future.