



GOALS AND TIMETABLES

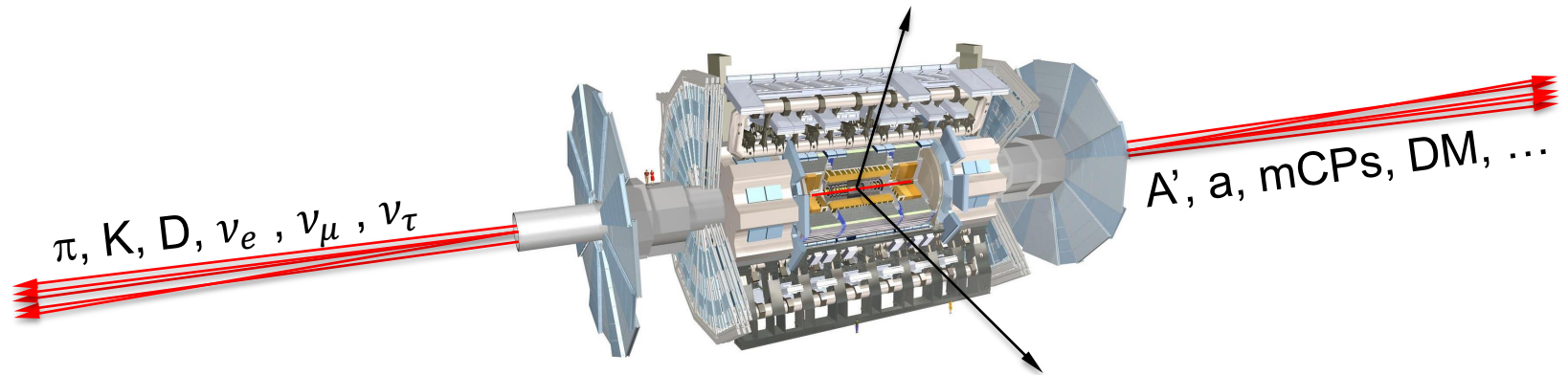
4th Forward Physics Facility Meeting (FPF4)

31 January 2022

Jonathan Feng, UC Irvine

THE FORWARD PHYSICS FACILITY

- Physics opportunities are currently being missed in the forward region at the LHC.



- The proposed FPF will be an underground cavern constructed to house a suite of far-forward experiments for the HL-LHC era.
- The FPF is uniquely positioned to fully realize the LHC's physics potential for both SM and BSM physics in the far forward region.
- A very preliminary cost estimate (+50%/-30%) is 25 MCHF + 13 MCHF for services + experiments. No modifications to the LHC are needed.

WELCOME

- This meeting is the 4th in the series:
 - FPF1 Meeting, 9-10 Nov 2020, <https://indico.cern.ch/event/955956>
 - FPF2 Meeting, 27-28 May 2021, <https://indico.cern.ch/event/1022352>
 - FPF3 Meeting, 25-26 Oct 2021, <https://indico.cern.ch/event/1076733>
 - FPF4 Meeting, 31 Jan-1 Feb 2022, <https://indico.cern.ch/event/1110746>
- These meetings take place within the frameworks of
 - Snowmass 2021: <https://snowmass21.org>
 - Physics Beyond Colliders: <https://pbc.web.cern.ch>
- FPF1 and FPF2 led to “The Forward Physics Facility: Sites, Experiments, and Physics Potential” ([2109.10905](https://arxiv.org/abs/2109.10905)), a 75-page, 80-author document distilling key progress on the FPF so far.
- FPF3 kicked off preparation for the FPF Snowmass White Paper.
- The goal of FPF4 is to review the status of the FPF and the FPF White Paper, identify missing topics, organize the remaining work to be done, and facilitate its timely completion.

SNOWMASS WHITE PAPER

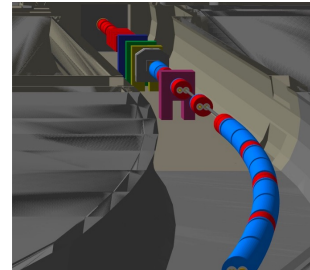
- **Timeline**
 - January 19: First draft of all contributions due.
 - January 31 – February 1: FPF4.
 - **February 7: Final drafts of all contributions due.**
 - February 21: Editors return 1st complete draft to authors.
 - February 28: Authors submit corrections and suggestions.
 - March 7: Editors complete final draft.
 - March 11: Final document submitted to Snowmass.
- **Table of Contents**
 - Executive Summary
 - Introduction
 - Facility and Experiments (Jonathan Feng)
 - BSM Physics (Felix Kling; Ahmed Ismail, Sebastian Trojanowski, Yu-Dai Tsai)
 - QCD (Juan Rojo; Lucian Harland-Lang)
 - Neutrino Physics (Hallsie Reno; Kevin Kelly, Vishvas Pandey)
 - Astroparticle Physics (Dennis Soldin; Luis Anchordoqui)
 - Conclusions
 - References
- **Status and Publication**
 - The White Paper contributions are currently being collected in Overleaf documents for each section. Contact the relevant editors with questions.
 - Given the current contributions, we expect ~300 pages and ~200 authors.
 - The Snowmass version will include both authors and endorsers (call to come).
 - We plan to submit the final version (without endorsers) to a journal.

THE PROGRAM: DAY 1

Facility and Environment

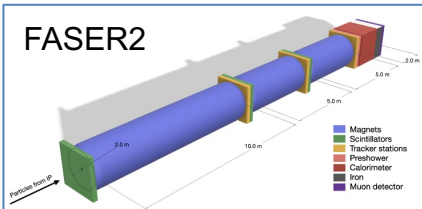


View from the SM18 area

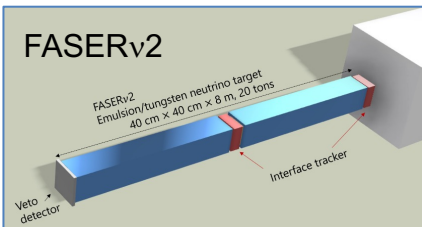


Experiments

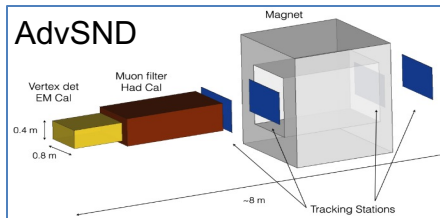
FASER2



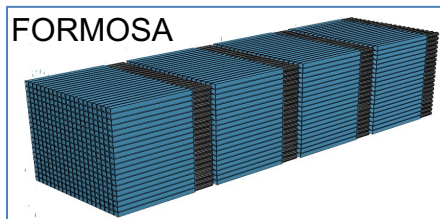
FASERv2



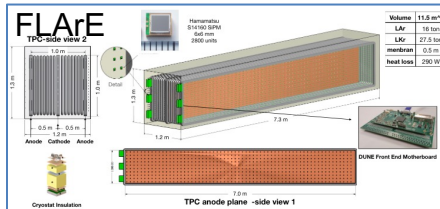
AdvSND



FORMOSA



FLArE



07:00	Conference Opening				07:00 - 07:15
	Facility and Environment				Jonathan Lee Feng
					07:15 - 08:00
08:00	Experiments				Jonathan Lee Feng
					08:00 - 10:00
10:00	BSM Working Group Felix Kling	QCD Working Group Juan Rojo	Neutrino Working Group Mary Hall Reno	Astroparticle Working Group Dennis Soldin	
11:00					
12:00					

Working Group Parallel Sessions

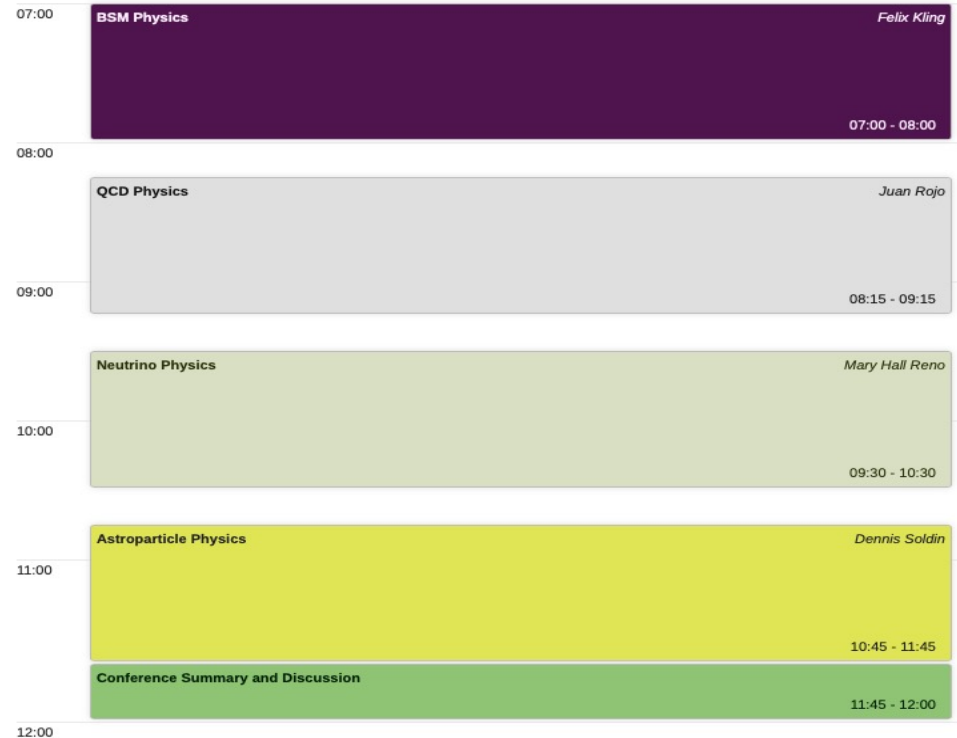
BSM Physics
QCD Physics
Neutrino Physics
Astroparticle Physics

THE PROGRAM: DAY 2

Reports from the Working Groups

BSM Physics
QCD Physics
Neutrino Physics
Astroparticle Physics

Conference Summary and Discussion



Program Notes

- Zoom links were sent to registrants and are also now posted on the indico site.
- Speakers and chairs: please stay on time; we have a very full program with little buffer between sessions.
- At the same time, following the tradition of previous FPF meetings, active discussion is encouraged; this meeting is not recorded.