



PBC annual workshop, CERN, 7-9 November 2022

## INTRODUCTION & SCOPE

Gianluigi Arduini, Joerg Jaeckel and Claude Vallée

### Post-EPPSU PBC reminder:

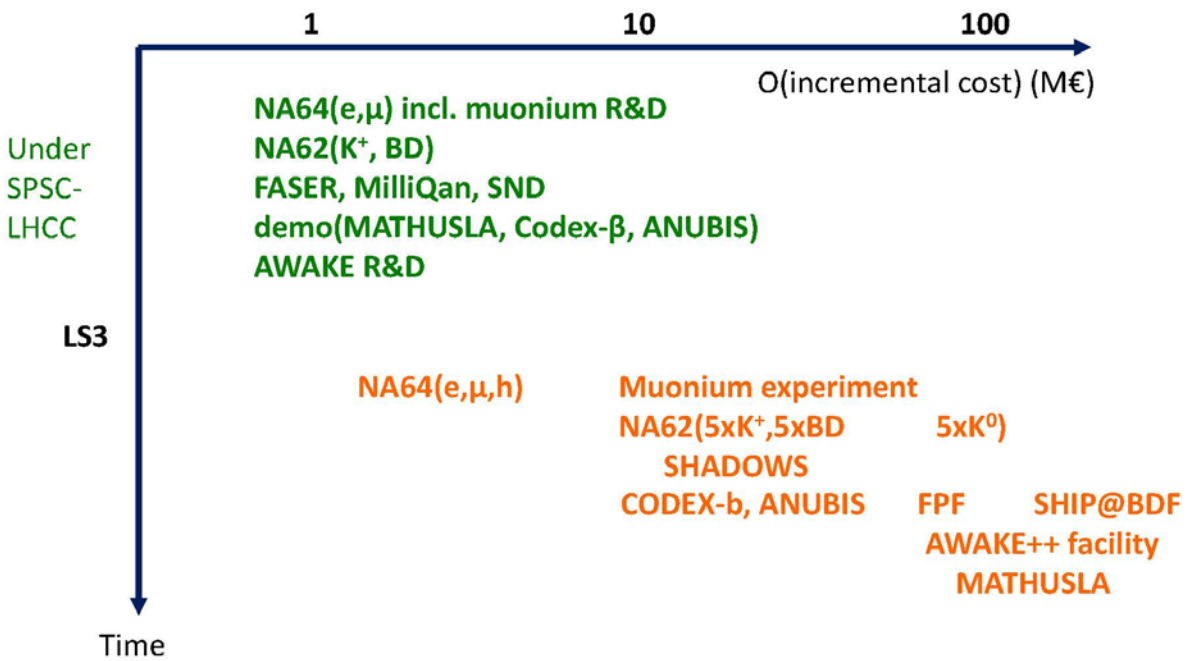
**March 2021: First post-EPPSU workshop ([indico](#)) :**  
*relaunch of PBC activities after EPPSU recommendations*

**December 2021: General working group meeting ([indico](#)) :**  
*PBC updated organization and projects status*

**This week ([indico](#)) :**  
*Annual workshop with a focus on consolidations and preparations for post-LS3*

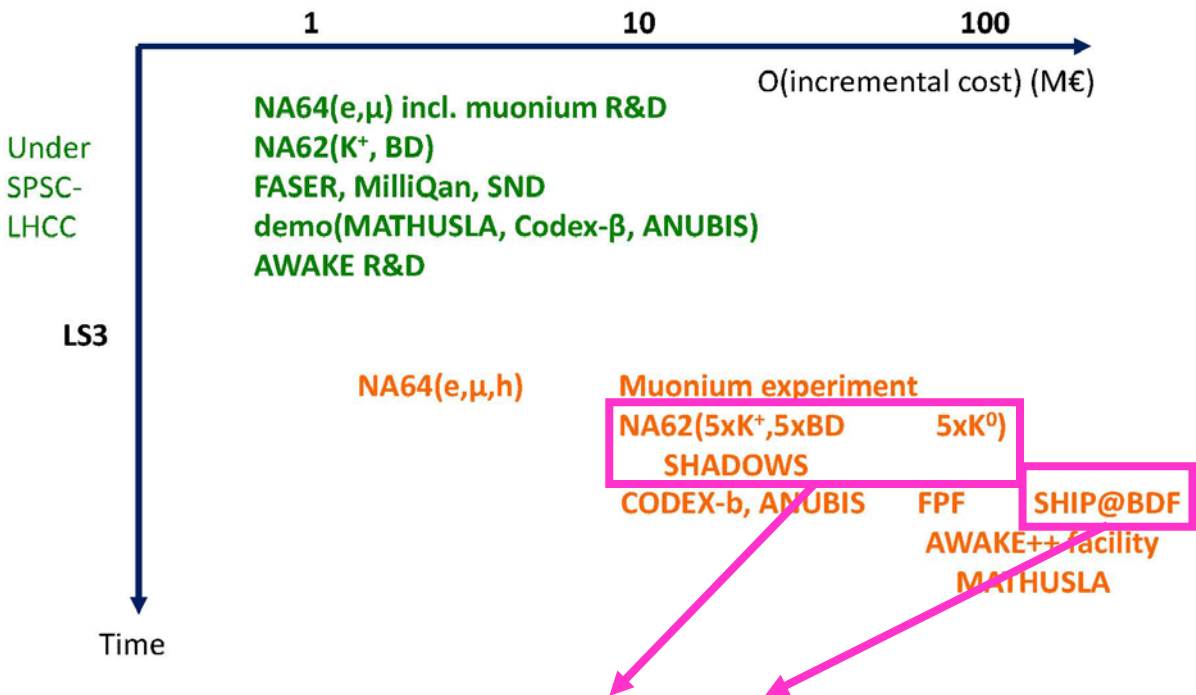
# PBC BSM LANDSCAPE

December 2021 wrap-up (costs to be updated)



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A highlight: focus on future of ECN3 NA underground hall:

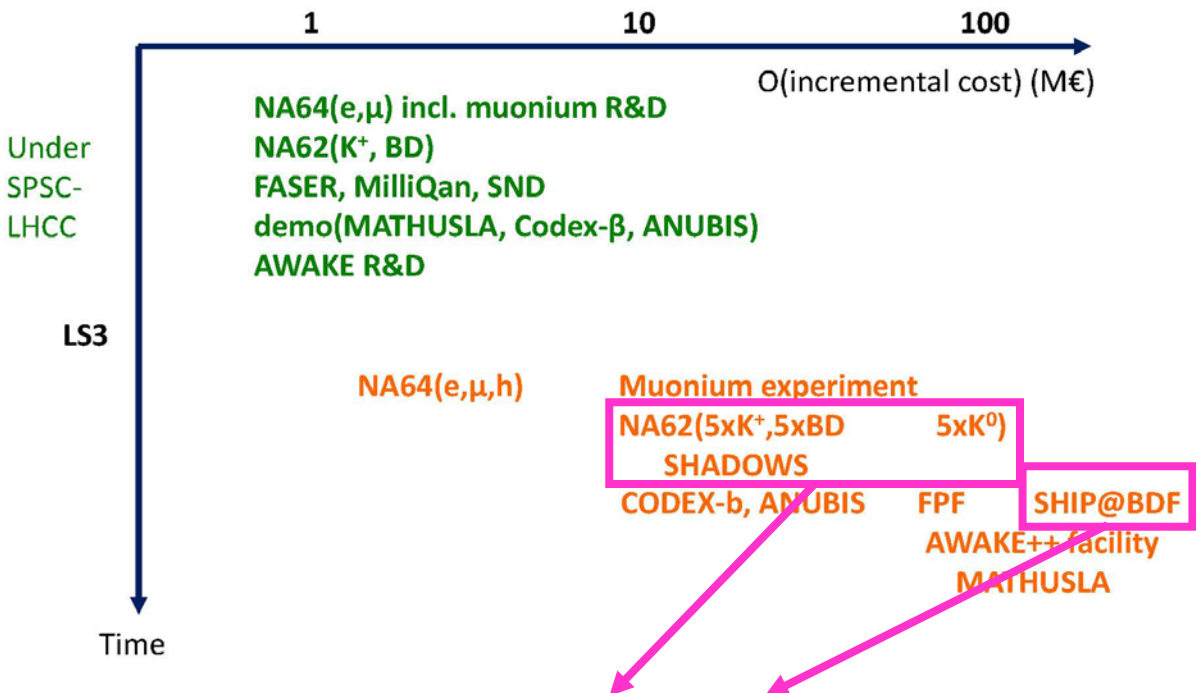
- High-intensity facility with HIKE&SHADOWS vs SHIP@ECN3
- Strong connection with North Area consolidation programme

Decision timeline:

- High intensity facility early 2023 (inclusion in next MTP)
- Choice of experimental programme end 2023

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**A highlight: focus on future of ECN3 NA underground hall:**

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**Decision timeline:**

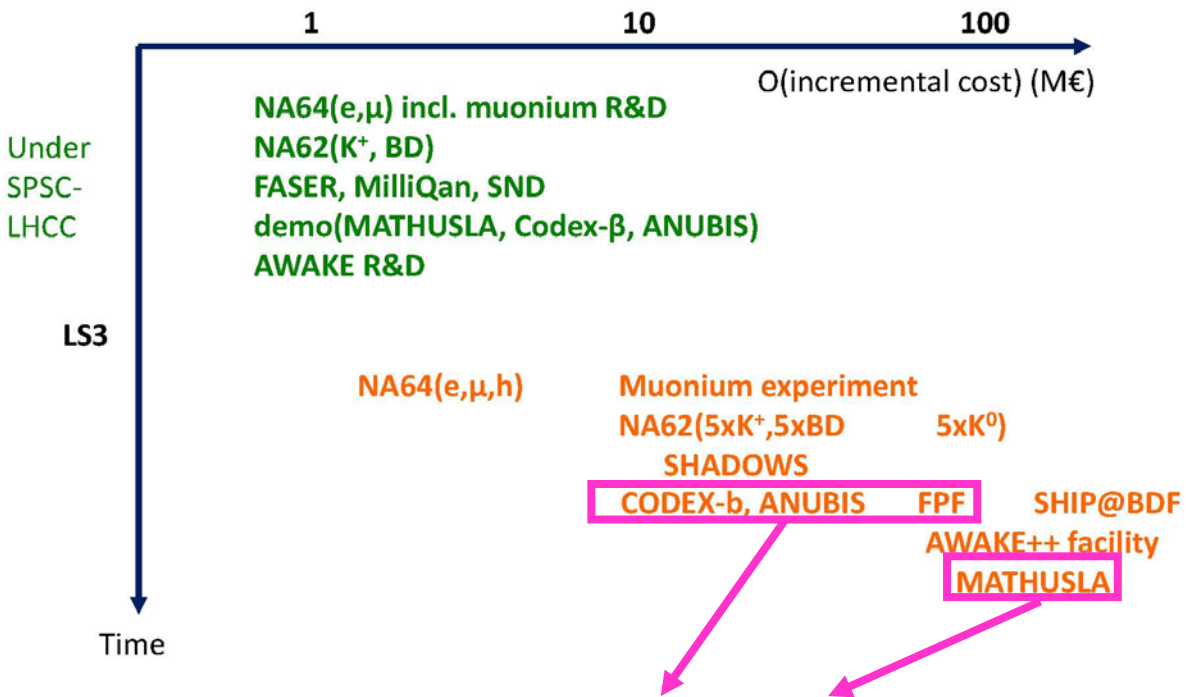
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## ECN3 session all day today

Time	Topic	Speaker
<b>09:35 → 12:30 ECN3</b>		
Convener: Claude Vallee (Centre de Physique des Particules de Marseille)		
09:35	Status of the Proposals: HIKE ⌚ 20m	Speaker: Cristina Lazzeroni (University of Birmingham (GB))
10:05	Status of the Proposals: SHADOWS ⌚ 20m	Speaker: Gaia Lanfranchi (INFN e Laboratori Nazionali di Frascati (IT))
10:35	Coffee Break ⌚ 30m	
11:05	Status of the Proposals: SHIP@ECN3 ⌚ 20m	Speaker: Heiko Markus Lacker (Humboldt University of Berlin (DE))
11:35	Status of the Proposals: TauFV ⌚ 15m	Speaker: Lesya Shchutka (EPFL - Ecole Polytechnique Federale Lausanne (CH))
12:00	Physics reach: preliminary analysis ⌚ 20m	Speaker: Felix Kahlhoefer (Karlsruhe Institute of Technology)
<b>14:30 → 17:25 ECN3</b>		
Convener: Gianluigi Arduini (CERN)		
14:30	Preliminary findings of the PBC Task Force on ECN3 beam delivery and related infrastructure/consolidation scenarios for post-LS3 operation ⌚ 20m	Speakers: Markus Brugger (CERN), Matthew Alexander Fraser (CERN)
15:00	Experiment specific configuration in TCCB/ECN3 - Status and outlook: HIKE/SHADOWS ⌚ 20m	Speaker: Johannes Bernhard (CERN)
15:30	Experiment specific configuration in TCCB/ECN3 - Status and outlook: BDF/SHIP ⌚ 20m	Speaker: Claudia Ahidida
16:00	Coffee Break ⌚ 30m	
16:30	Implications for North Area Consolidation: preliminary ⌚ 15m	Speaker: Yacine Kadi (CERN)
16:55	Discussion on open questions and further steps ⌚ 30m	

# PBC BSM LANDSCAPE cont'd

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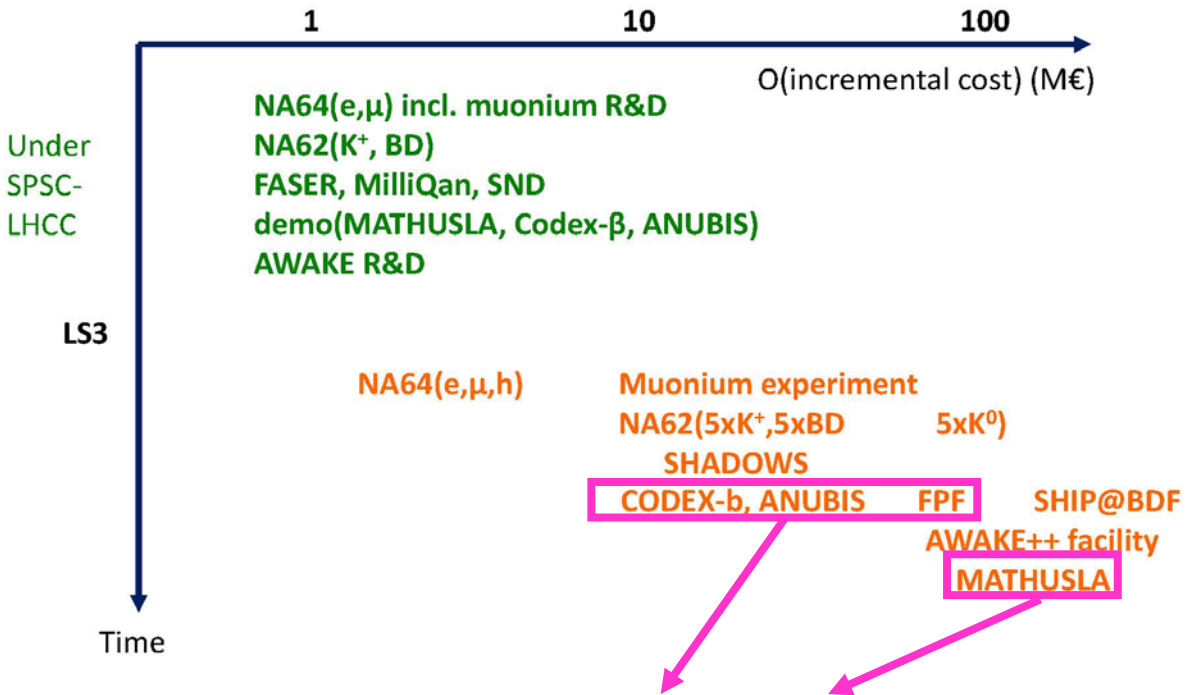


Another highlight: progress in LHC LLP projects, e.g. the Forward Physics Facility and associated experimentation

Strong support from the US community at Snowmass

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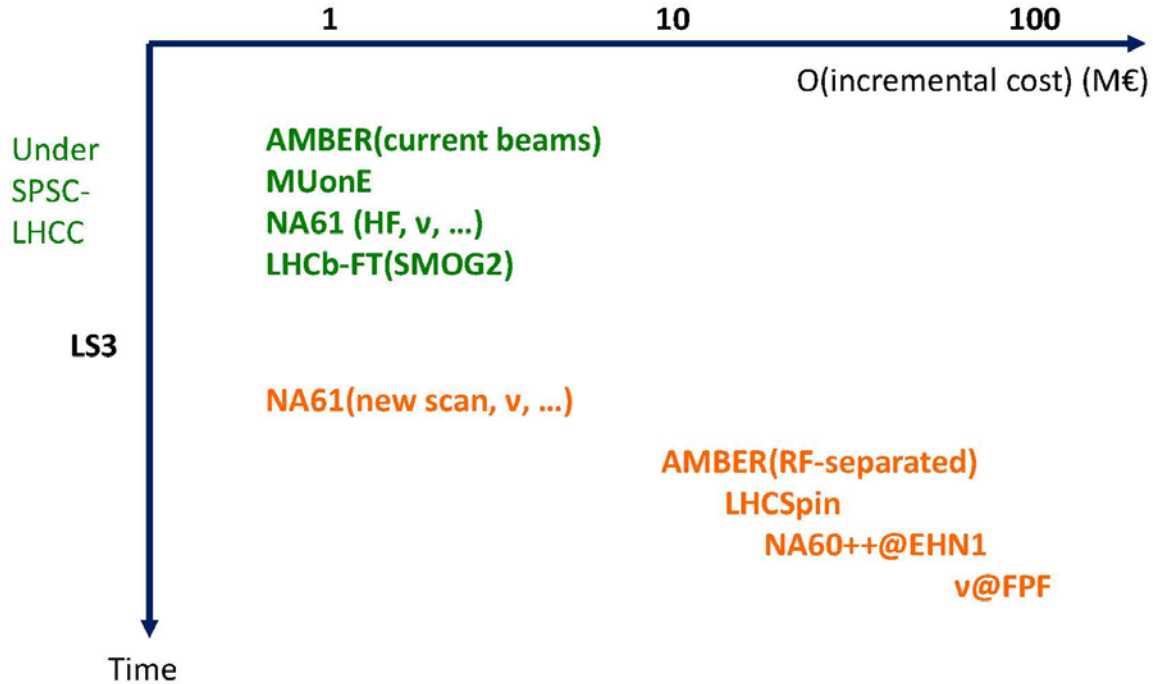
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## LHC LLP session Tuesday morning

09:00 → 12:30	LHC
Conveners: Joerg Jaeckel (Institut fuer theoretische Physik, Heidelberg University), Massimiliano Ferro-Luzzi (CERN)	
09:00	<b>Forward Physics Facility @ LHC: preliminary design</b> ⌚ 20m Speaker: Jamie Boyd (CERN)
09:30	<b>Forward Physics Facility @ LHC: physics reach</b> ⌚ 15m Speaker: Jonathan Lee Feng (University of California Irvine (US))
09:50	<b>FLArE conceptual design</b> ⌚ 15m Speaker: Diwan Milind (BNL)
10:10	<b>FIP physics at Large Angle (Codex-B/ANUBIS/MATHUSLA, etc.)</b> ⌚ 15m Speaker: Juliette Alimena (CERN)

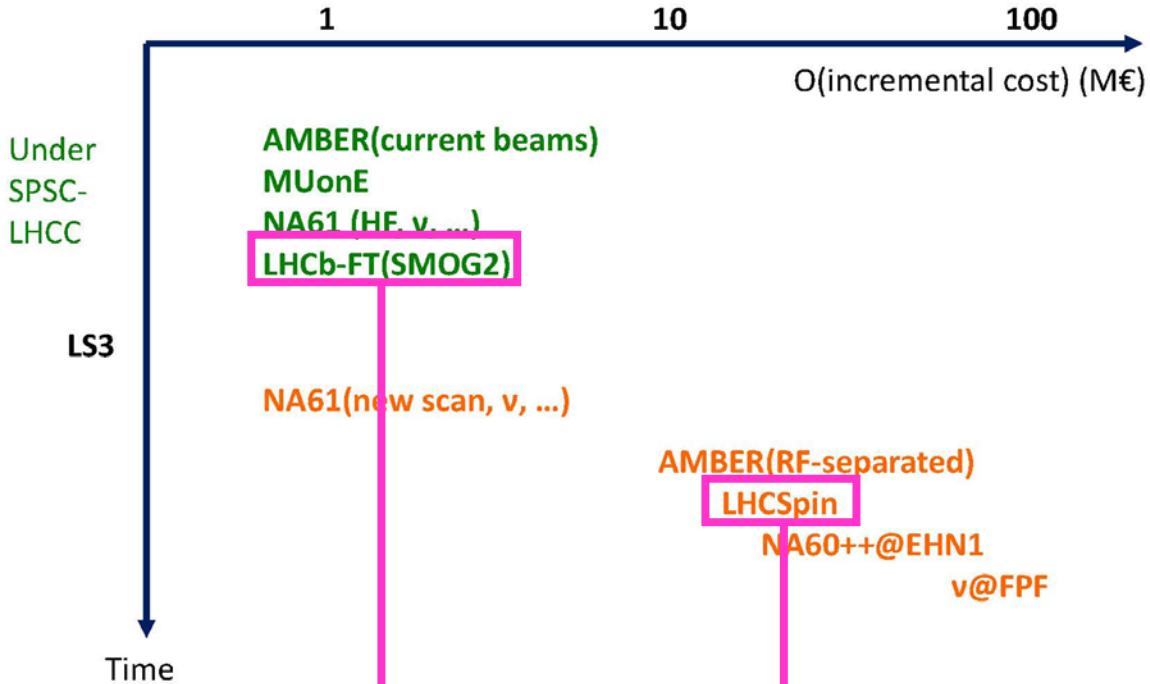
# PBC QCD LANDSCAPE

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A highlight:

Steady progress in LHC Fixed Target including gas targets and crystal set-ups

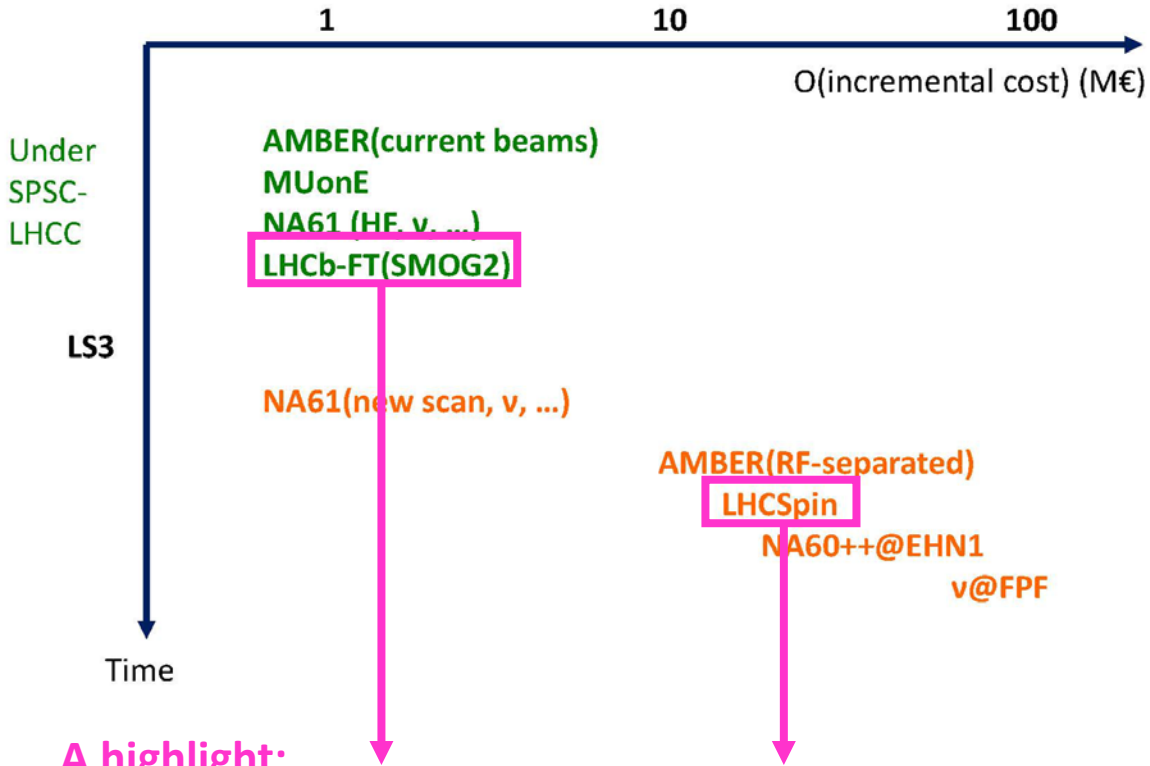
Among critical aspects:

Technically feasible gases and integration of double-crystal set-ups



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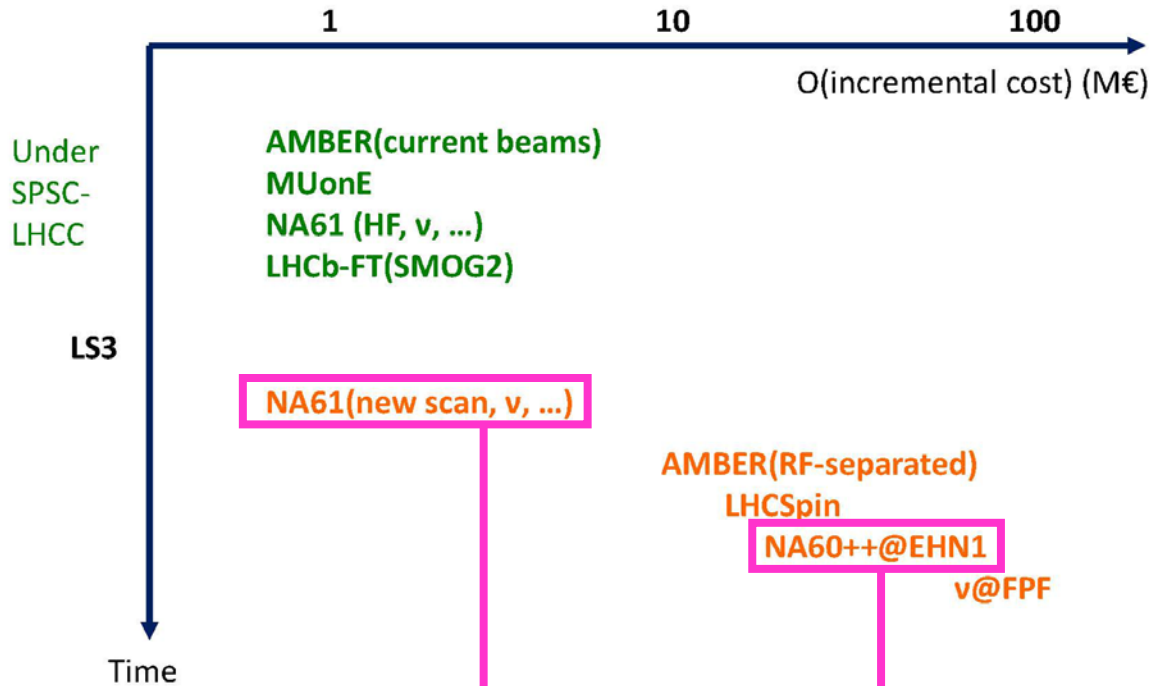
Technically feasible gases and integration of double-crystal set-ups

## LHC Fixed Target session Tuesday morning

11:00	<b>First beam-gas events in LHCb using SMOG2</b> ⌚ 15m Speaker: Luciano Libero Pappalardo (Universita e INFN, Ferrara (IT))
11:20	<b>ALICE-FT</b> ⌚ 15m Speakers: Daniel Kikola, Daniel Kikola (Warsaw University of Technology (PL))
11:40	<b>LHCb-FT</b> ⌚ 15m Speaker: Nicola Neri (Università degli Studi e INFN Milano (IT))
12:00	<b>Towards an LHC test stand for crystal assisted halo extraction</b> ⌚ 20m Speaker: Pascal Hermes (CERN)

# PBC QCD LANDSCAPE cont'd

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Another highlight:

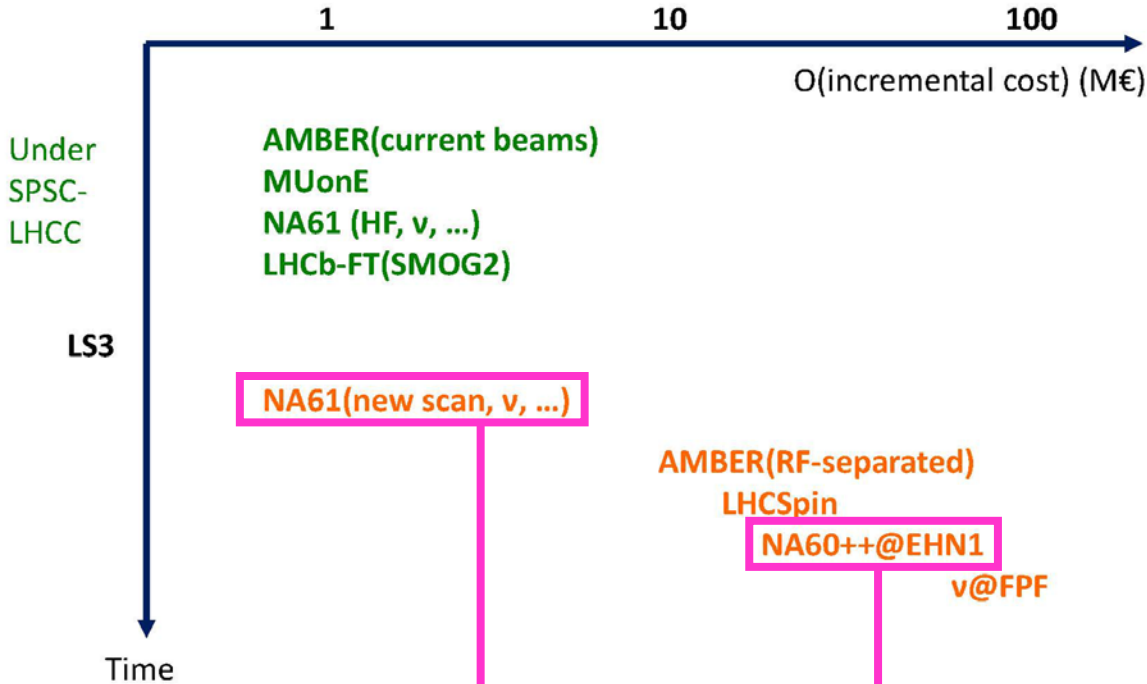
Preparation of new ion beams wished by the NA experiments

One critical aspect:

Ion sources and operation compatibility between experiments, incl. proton runs and LHC

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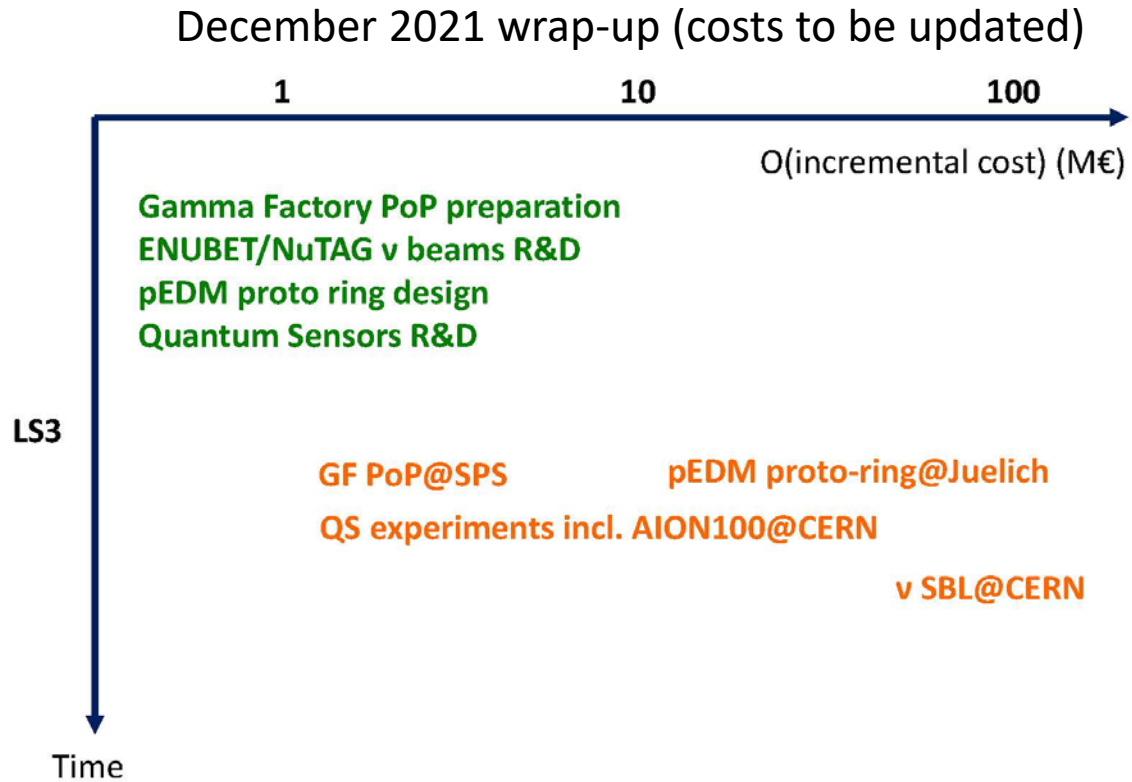
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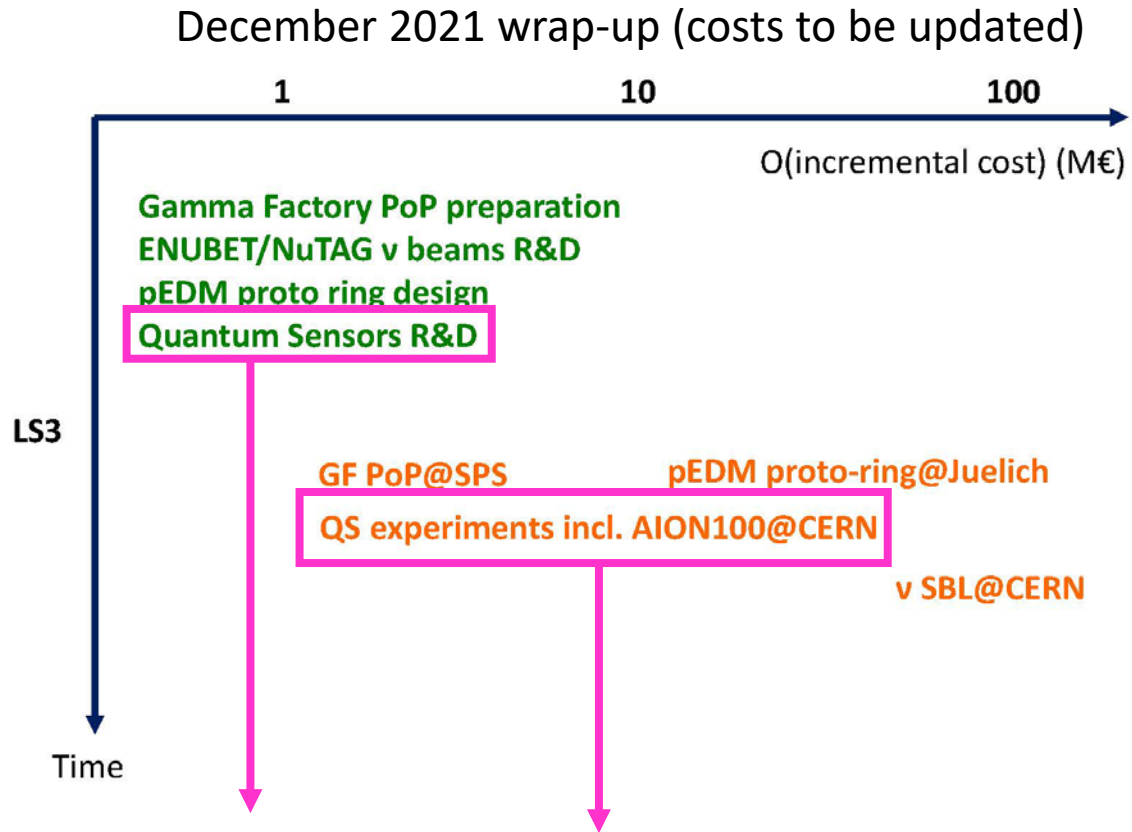
## NA ions session Tuesday afternoon

14:00	→ 16:50	NA-Ions
Conveners: Daniel Boer, Gianluigi Arduini (CERN)		
14:00		<b>Status of the Proposals: NA60++</b> ⌚ 20m Speaker: Gianluca Usai (Universita e INFN, Cagliari (IT))
14:30		<b>Status of the Proposals: NA61++</b> ⌚ 20m Speaker: Maja Katarzyna Mackowiak-Pawlowska (Warsaw University of Technology (PL))
15:00		<b>Physics reach: preliminary analysis</b> ⌚ 20m Speakers: Daniel Boer, Gunar Schnell, Jan M. Pawlowski
15:30		<b>Coffee Break</b> ⌚ 30m
16:00		<b>Implications for the Accelerator complex</b> ⌚ 20m Speaker: Reyes Alemany Fernandez (CERN)

# PBC R&D LANDSCAPE



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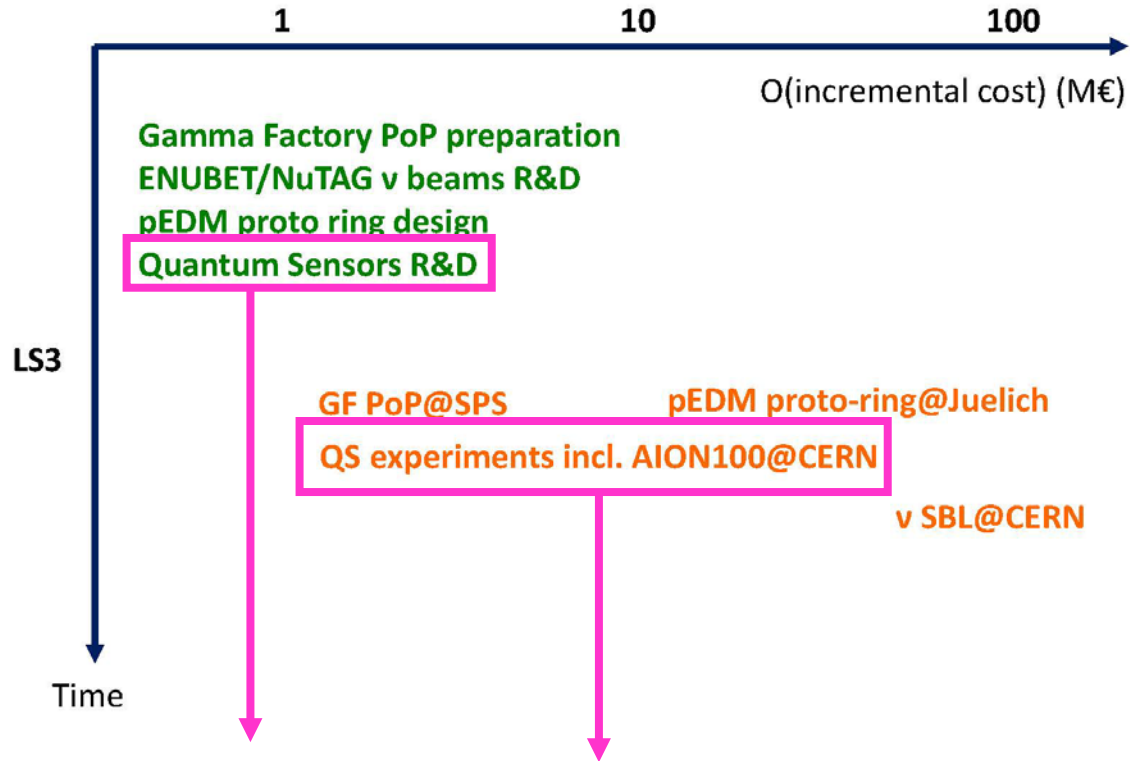


A highlight:

Exploration of new technologies for non-accelerator experiments

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Exploration of new technologies for non-accelerator experiments

## Technology session Wednesday morning

10:20 → 12:20 **Non-accelerator Experiments** 📍 503/1-001 - Council Chamber

Convener: Sergio Calatroni (CERN)

10:20	<b>Technologies available at CERN to support new experiments/ideas (outcome of TECH workshops)</b> ⌚ 20m
	Speaker: Sergio Calatroni (CERN)
10:50	<b>AION-100@CERN: conceptual design study status and prospects</b> ⌚ 20m
	Speaker: Jonathan R. Ellis (University of London (GB))
11:20	<b>VMB@CERN status and plans</b> ⌚ 15m
	Speaker: Guido Zavattini (Universita e INFN, Ferrara (IT))
11:40	<b>Axion searches: RADES</b> ⌚ 15m
	Speaker: Jessica Golm (CERN)
12:00	<b>Axion searches: Heterodyne Detection</b> ⌚ 15m
	Speaker: Raffaele D'Agnolo

**Last but not least...**

*We meet altogether this evening at 18:00 for a drink!*

18:00 → 19:00 **Welcome Drink** 🕒 1h

📍 61/1-201 - Pas perdue

**HAVE A NICE WORKSHOP!**