

Welcome!

<https://indico.desy.de/event/28588/>

Beyond ALPS II
8 February 2021

Axel Lindner
DESY

Beyond ALPS II

8-9 February 2021
Europe/Berlin timezone

- Overview
- Timetable
- Contribution List
- Registration
- Participant List


Contact

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At present the ALPS II experiment is under construction at DESY in Hamburg, scheduled to start a first science run in late 2021. ALPS II will look for axion-like particles and other WISPs with the light-shining-through-a-wall technique and boost the signal/noise ratio of previous experiments by 12 orders of magnitude.

This workshop addresses upgrade options of ALPS II, also in view of other axion search experiments at DESY, as well as other potential usage of the unique infrastructure set up in the former HERA accelerator tunnel and further ideas for high precision interferometry experiments for particle physics.

The workshop will take place in virtual format only. Zoom links will be communicated before 7 February.



ALPS II under construction as of October 2020 (Copyright DESY / M. Mayer)

Starts 8 Feb 2021, 14:00
Ends 9 Feb 2021, 20:00
Europe/Berlin

Aaron Spector
Axel Lindner
Hartmut Grote



WISP experiments at DESY 2007

Make use of existing setups


10 May 2007

Niels Meyer
DESY

ALPS Setup

ALPS is planned around a spare HERA proton dipole magnet

$\phi - \gamma$ conversion region $\gamma - \phi$ conversion region



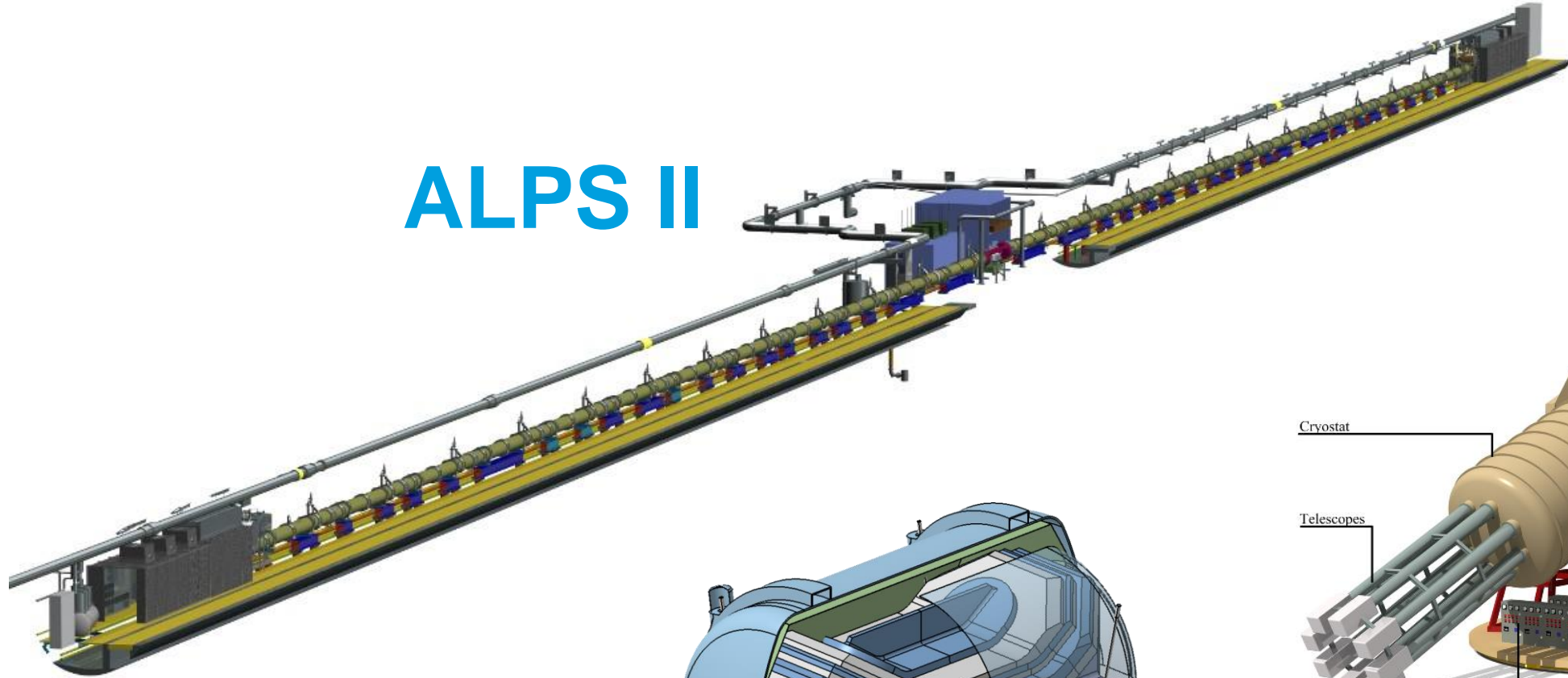
Detektor Barrier Laser

Niels Meyer ALPS Prospects and Status DESY PRC Open Session 10. May 2007 Page 12

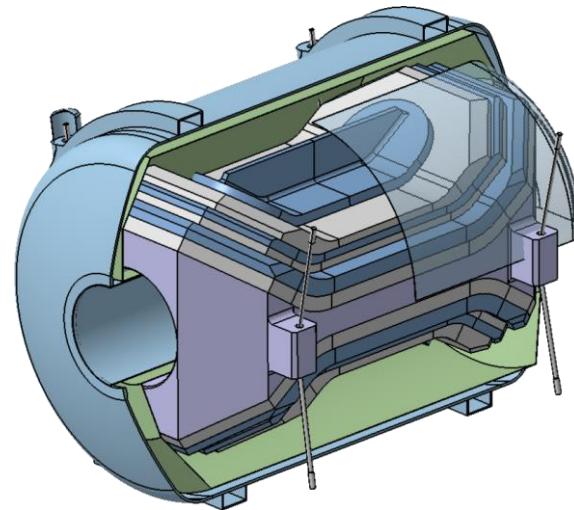
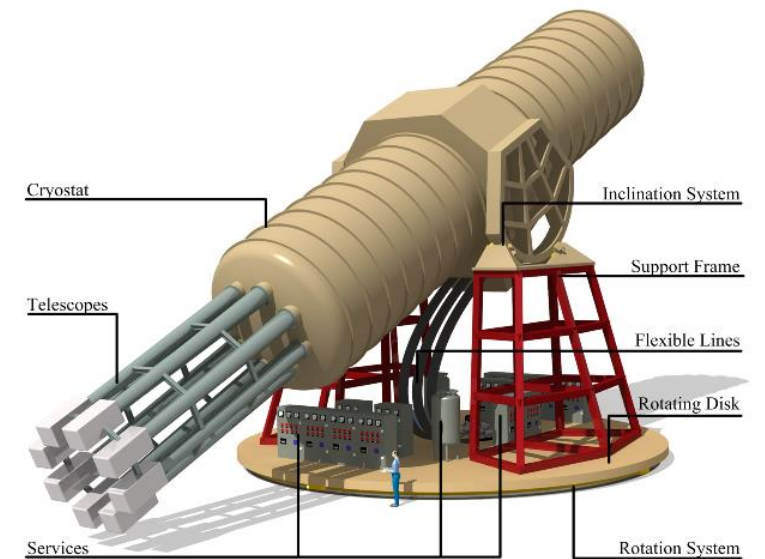
WISP experiments at DESY 2021 and beyond

Dedicated infrastructure

ALPS II



IAXO

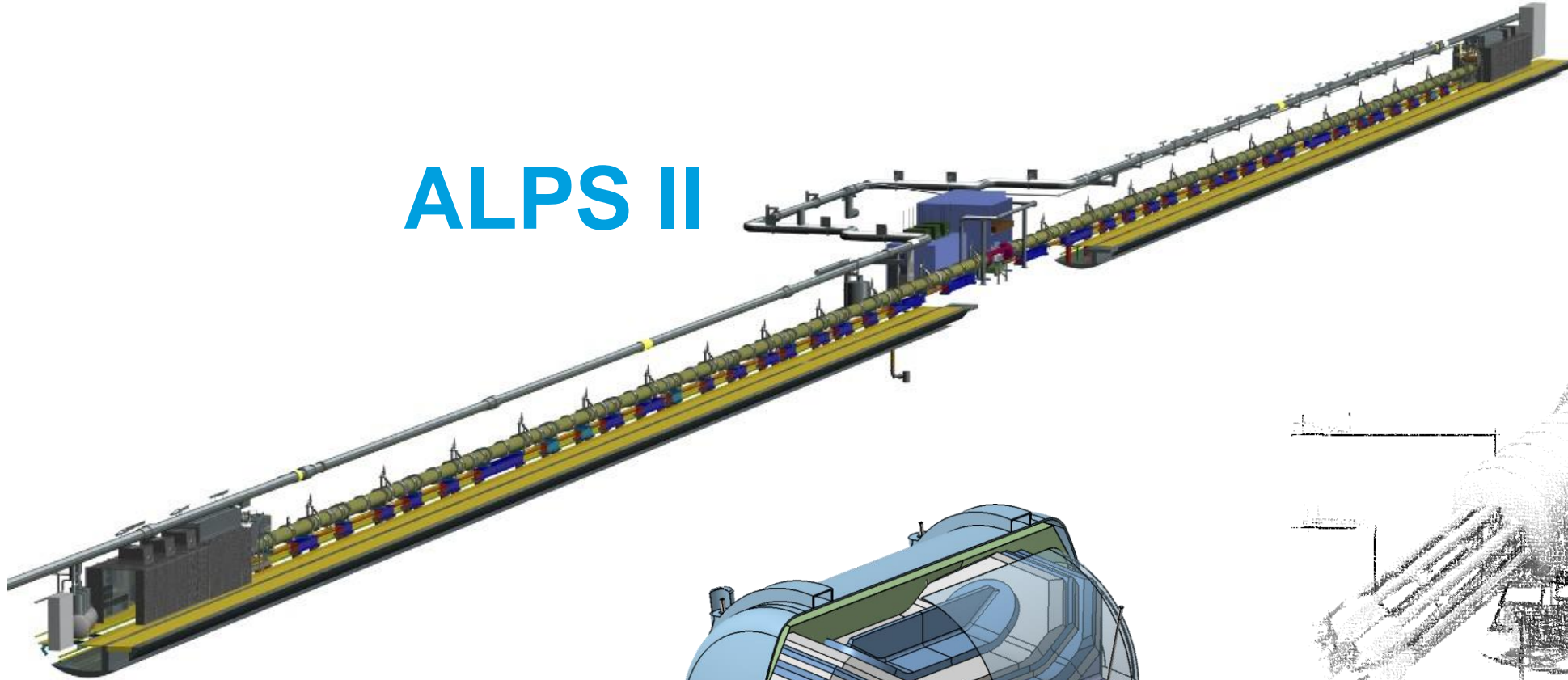


MADMAX

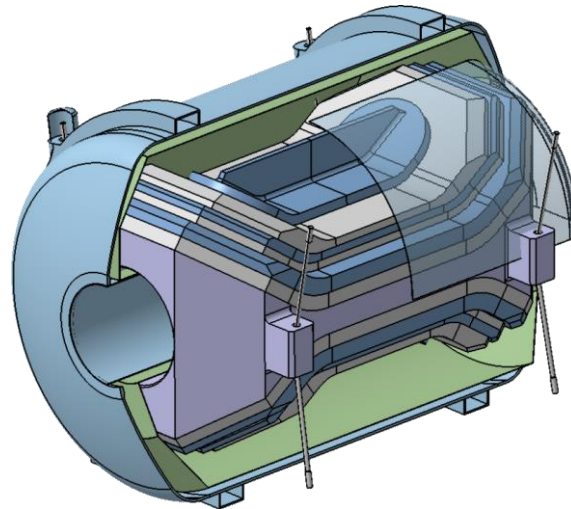
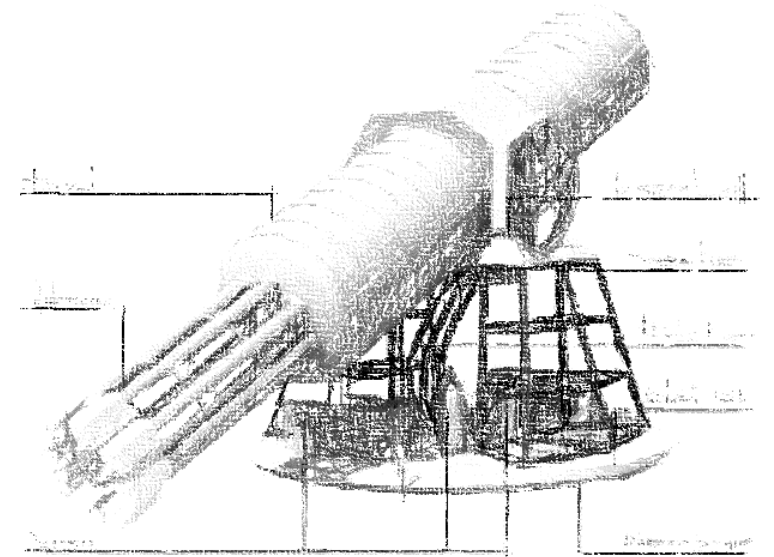
WISP experiments at DESY 2021 and beyond

Dedicated infrastructure

ALPS II



IAXO

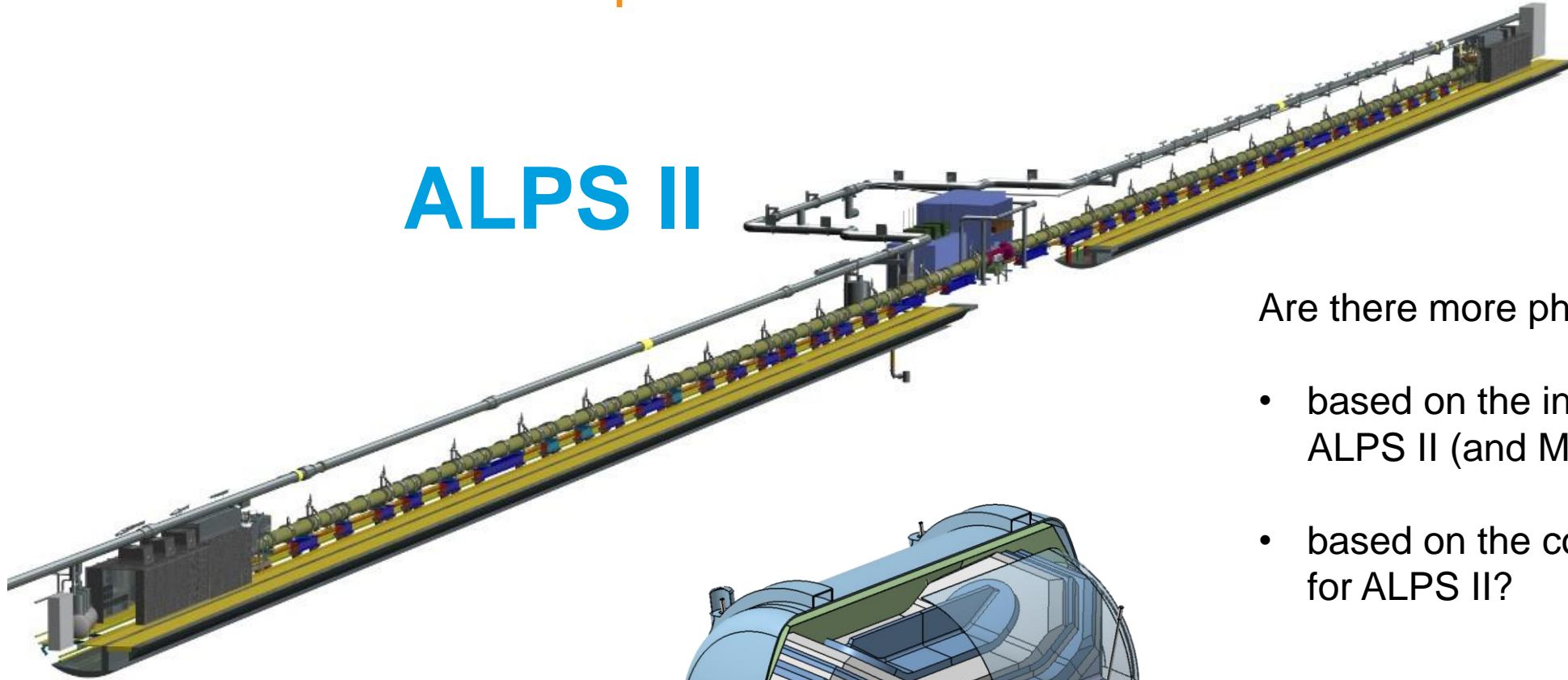


MADMAX

Beyond ALPS II

Dedicated infrastructure and competences

ALPS II



Are there more physics opportunities

- based on the infrastructure built for ALPS II (and MADMAX),
- based on the competences built up for ALPS II?

MADMAX

Yes, there are!

Timetable

< Mon 08/02 Tue 09/02 All days >

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15:00	Introduction	<i>Axel Lindner</i>
		15:00 - 15:30
	Vacuum magnetic birefringence at the ALPS magnet string	<i>Guido Mueller</i>
16:00		
		15:30 - 17:00
17:00	Break	
		17:00 - 17:15
	ALPS II upgrade options	<i>Benno Willke</i>
18:00		
		17:15 - 19:30
19:00		

Timetable

< Mon 08/02 Tue 09/02 All days >

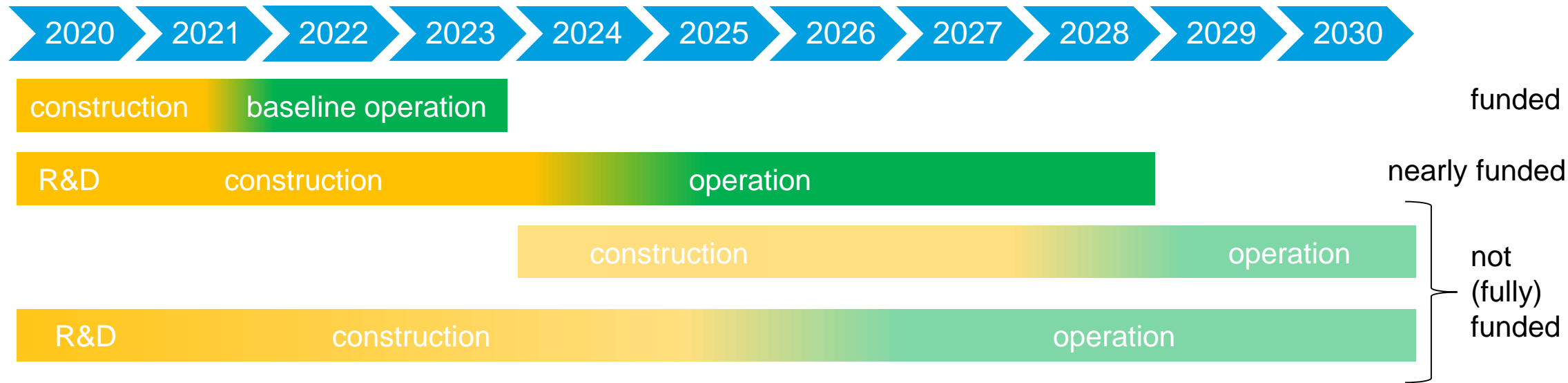
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15:00	Ultra high frequency gravitational waves	<i>Hartmut Grote</i>
		15:00 - 16:15
16:00		
	Break	
		16:15 - 16:30
	Other ideas for particle physics with precision interferometry	<i>David Tanner</i>
17:00		
		16:30 - 17:30
	Closeout: Closeout	<i>Axel Lindner</i>
		17:30 - 18:00
18:00		

Timelines

ALPS II, BabyIAXO, IAXO, MADMAX

Some optimistic view (funding), assuming no further surprises (WISP discovery, Corona).



Everything will change if ALPS II finds a WISP!

Beyond ALPS II

Goal of this workshop

- Get discussions started on future opportunities.
- Formulate a “white paper” summarizing the findings of the workshop and submit it to the DESY directorate.
 - ❖ Authors: session conveners plus volunteers?
- Decide on follow-up meetings for individual subjects.

Getting us organized

Helpful hints

- <https://indico.desy.de/event/28588/>
- <https://desy.zoom.us/j/94656218374>
Meeting-ID: 946 5621 8374
Passcode: 785346
- Raise your virtual hand if you want to contribute to the discussions.
- In case of questions / problems:
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hartmut.grote@astro.cf.ac.uk