

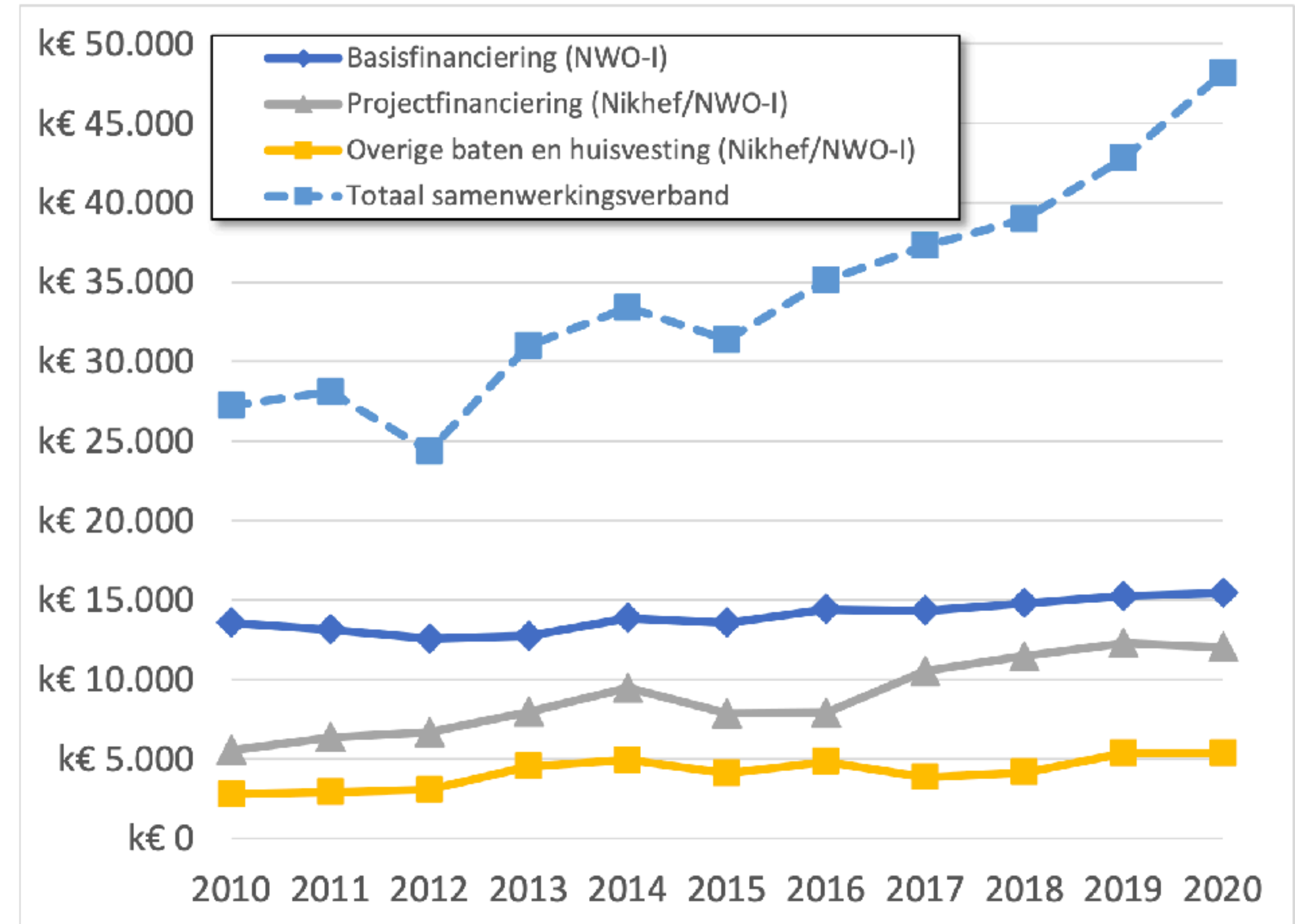
STAFF MEETING VISTA 2023-2028

Amsterdam, December 20, 2022

FINANCIAL DEVELOPMENT

Increase of total funding

- University partners growing
 - New members Groningen (2016) and Maastricht (2019)
 - Further support for science activities at our universities
- Institute “mission” budget remains constant
 - Increasingly difficult for the institute to play the ‘nexus’ role with universities



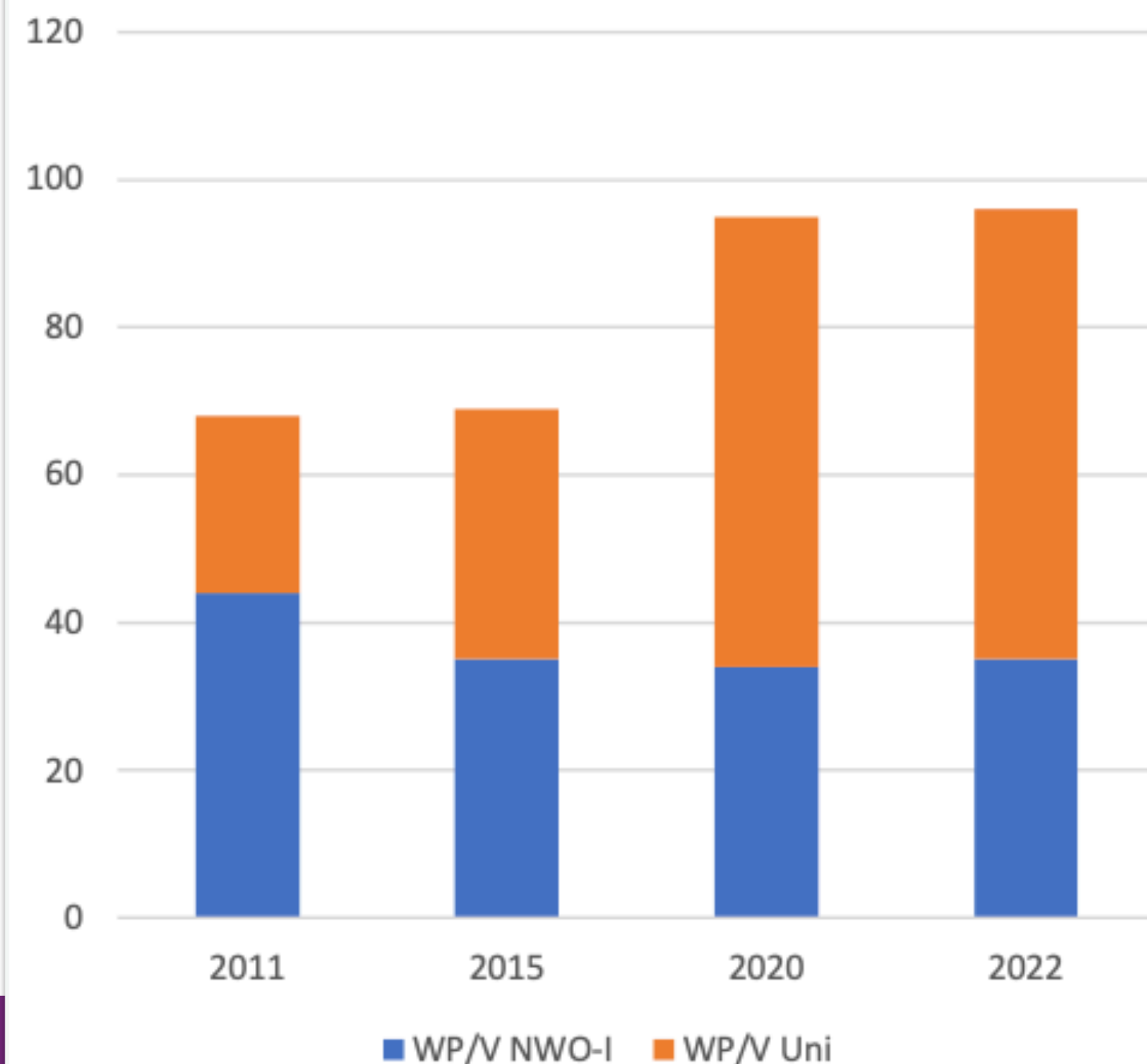
INSTITUTE VERSUS UNIVERSITY PARTNERS

University Partners increasingly important

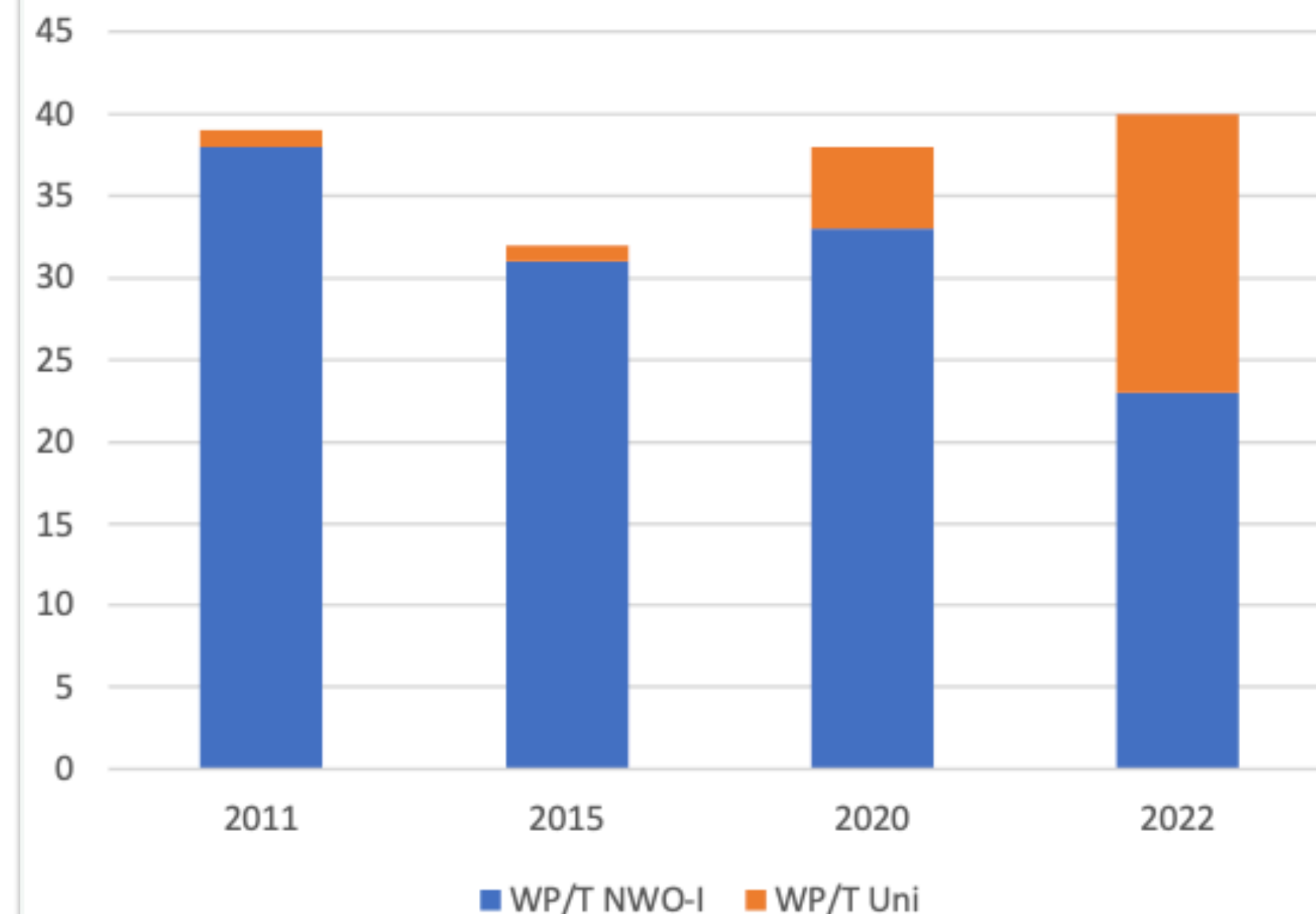
- Matching PhD/PD from institute no longer self-evident



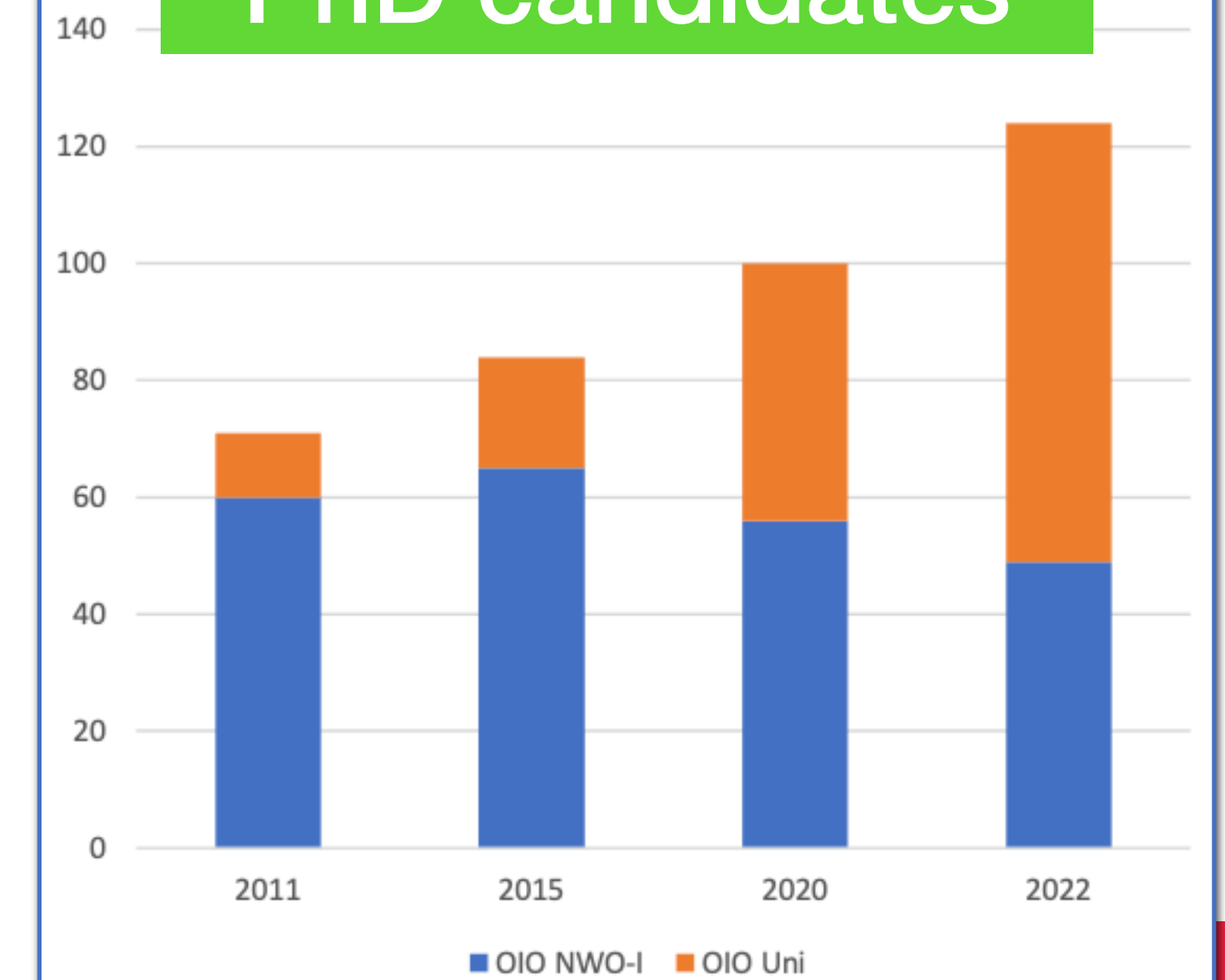
Permanent staff



Postdocs



PhD candidates



GENDER DIVERSITY

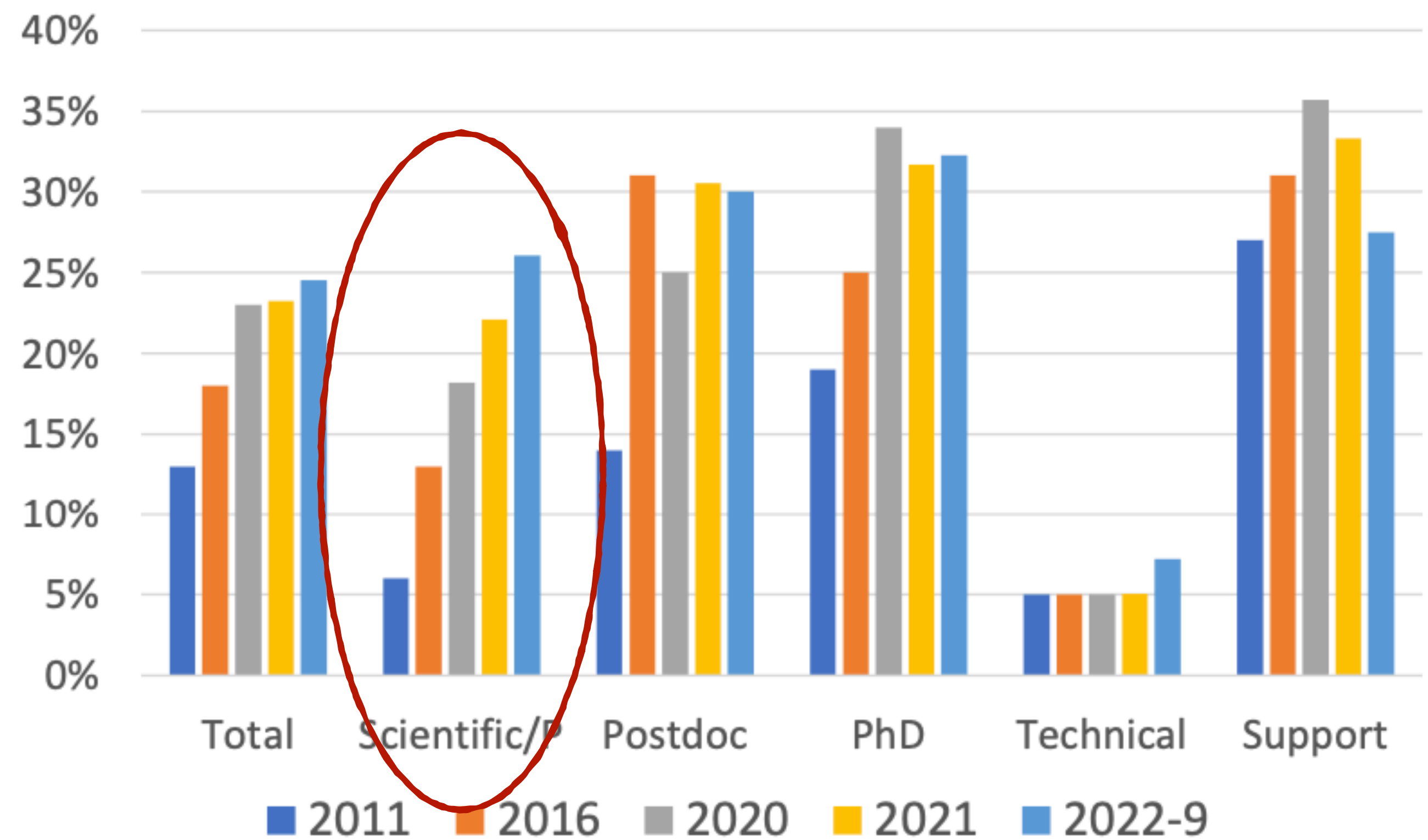
Gender diversity of the scientific staff greatly improved

- Diversity is OK, but inclusion..

Diversity & Inclusion

- To increase the diversity of the organization
 - Various management levels
- Dedicated D&I team installed

Development gender balance per staff type



PROCEDURE FOR STRATEGY DOCUMENT

We like to have a 'presentable draft' early next year

- For the Nikhef board on January 20th, 2023

However, the SAC needs to evaluate the final document

- After Nikhef Board meeting
- Before sending the final document to the SAC,
lets iterate once more with you!

Martijn van C will make notes of the discussions this afternoon

- as part of the writing team:
 - Jory Sonneveld, Lydia Brenner, Arjen van Rijn, Martijn van C, SB
- off-line feedback to this team always possible!

VISTA30: CONNECTING THE LARGE AND SMALL

Expanding knowledge

The main research effort is aimed at further understanding the universe in terms of elementary particles and forces, through data analysis, groundbreaking experiments and theory

Maintaining infrastructure

Much Nikhef effort is put into building, upgrading and exploiting the current and upcoming experiments

Preparing the future

Nikhef is constantly exploring new technological and scientific challenges and opportunities, and investing in people's talents and expertise

Healthy partnership

Nikhef strives to be a vibrant, diverse, sustainable and safe community in the (inter)national field of subatomic physics

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This has been discussed mainly on the Wednesday of the VISTA30 meeting

- All discussions were summarized by the 'notulist'
- The strategy is based on this feedback

Topic		Session 1	Session 2
1	Stimulation of interaction between different groups at <u>nikhef</u>	<u>Paul de Jong</u>	<u>Suzan du Pree</u>
2	Strategy for large funding proposals	<u>Peter Kluit</u>	<u>Hella Snoek</u>
3	How do we to make sure we attract/keep the best talents	<u>Raimond</u>	<u>Niels van B</u>
4	Balancing hybrid working	<u>David G</u>	<u>Wouter W</u>
5	Diversity and Inclusion	<u>Mara</u>	<u>Mengqing</u>
6	Sustainability	<u>Maria</u>	<u>Arjen</u>
7	Professional development	<u>Jeff</u>	<u>Antonio</u>
8	Nikhef community; integration of university partners and NWO-I	<u>Juan Rojo</u>	<u>Cristina</u>
9	Integration of Recognition and Rewards	<u>Auke Pieter</u>	<u>Marta</u>
10	Open Science and scientific integrity	<u>Wouter V</u>	<u>P. Kuijer</u>
11	Societal impact and outreach	<u>Jacco de V</u>	<u>T du Pree</u>
12	Link with industry, start-ups and patents	<u>Ernst Jan Buis</u>	<u>Martin v. Beuzekom</u>

STIMULATION OF INTERACTION BETWEEN DIFFERENT GROUPS AT NIKHEF

How can we strengthen links between the GW group and the rest of Nikhef?

What explicit actions/initiatives can help?

Is there room for theory-meets-experiments type or cross platform initiatives?

How do we keep building our community?

Do we want more interaction between groups?

Better connection is needed between theory-experiment and experiment-experiment. There is a clear desire to do so.

- Stimulate shared doctoral students between experiment/theory
- Made@Nikhef is excellent initiative -
- Reenforcing and stimulate the colloquia and in-house academic trainings - is Friday optimal?
- More meetings on 'theory meets experiment'

Nikhef will organise an annual 'Heyday' - scientific connection day - like we had for VISTA

- We have asked the WAR to organise this in March 2023, to prepare e.g. ENW-XL

A 'Multimessenger' group should be identified and active

- Likewise for 'Dark matter' and 'SM-fits'

STRATEGY FOR LARGE FUNDING PROPOSALS

How can we maximize our chances for success in attracting (roadmap) funding?

What is our Nikhef funding strategy?

Shoot at as many targets as we want or select who applies? How do we stimulate people to apply for large funding?

Do we need a Nikhef directorate to orchestrate the different efforts?

Do we need a grant office? And if yes, for what purpose (proofreading, practice sessions, info, ...)?

Who is responsible for the grant office?

Nikhef cherishes its whole portfolio and will help wherever possible - in cases that funding proposals fail

- Should always challenge NWO for long term strategic programs and planning, connected to large scale infrastructures

Optimize chances for success

- Organise practice sessions for the funding proposal
- We devote too much ineffective effort in writing all the proposals
- The added value of writing a proposal itself is not very large in general, although new collaborations or research topics can emerge that exist beyond the proposal itself. Realise that a non-rewarded proposal also generates quite some frustration.
- The Grant Office is useful for giving/organizing feedback on the proposal (ENW-XL, Roadmap);
- We have to better organise 'a grill session'

Better transparencies on granting opportunities

HOW DO WE ATTRACT AND KEEP THE BEST TALENTS

What secondary benefits would make you more inclined to stay at Nikhef?

How can we better advertise the opportunities for hands-on experience offered by Nikhef to prospective graduate students?

Should we start a visible and high-profile Nikhef fellowship with a broad campaign?

Should Nikhef actively try to create more permanent positions or reserve funding for PhD and PD?

Further promote advantages of doing research at Nikhef.

- More emphasis on: lot of freedom, international research, CERN, ...
- Acknowledge the difficult career perspective in science
 - Nikhef (internationally) has a bad name in supervision of PhD students.
- Strengthen the ties to e.g. GRAPPA, TU's and HBO to increase in-flux
 - University courses at bachelors and master level are crucial

Reserve permanent positions for talented people early in their career

- At the same time we have to keep 'mission funding' available for PhD/PD positions

HYBRID WORKING

How do we maintain the stimulating Nikhef environment when working in hybrid mode?
How to make sure personal contacts happen sufficiently without becoming restrictive?
Which “rules” concerning hybrid working are useful and which are counter-productive?
What do you think of the Nikhef policy to encourage being present on Tuesdays and Thursdays?

Working environment flexibility at Nikhef is a large asset

- We need to interact, and especially PhD and PD suffer from the absence of senior scientists
 - ‘Nikhef days’ should be reversed: define a day/week to work at home: Mon/Wed?

Stimulate transparency for staff when/where they are available

- Benefit from more modern tools to keep connected
 - Working/informing together using SLACK or Mattermost

Renovation period is difficult for our community

DIVERSITY AND INCLUSION

How can Nikhef increase diversity among its staff and students?

What should be the percentage goals for diversity at each level?

How should we educate the Nikhef community on our values and on behavioral expectations, including how best to react to inappropriate language, body-language, micro-aggressions or any form of discrimination?

What should be the milestone years in the Diversity and Inclusion Project?

The D&I team has been installed at Nikhef

- Active attention to many people at Nikhef. Gender in WP/V is increasingly improving - good!
 - More female PL and Group Leaders
- Importance of role models - especially at young age level
- Pay continuous attention to Social Safety - diversity team can play a role here?

Nikhef staff participation as role-models:

- Activate Nikhef people to schools, in particular primary schools
- Set-up training to be a guide at Nikhef and at schools

Hiring as a tool for change - include bias training, e.g. for hiring processes

- Provide a staff position earlier in the career

Better visibility and positioning of the 'thrust person'

Press NWO to continue WISE and provide alternative to MOSAIC funding schemes

SUSTAINABILITY

What can Nikhef do to inspire people to make more sustainable choices in their (work)life? How to integrate sustainability in the 'welcome package' for new employees of Nikhef?
How to reduce travel and use more sustainable travel?
How to inform and involve people about the sustainable decisions that Nikhef makes, and their consequences (i.e. show the change over time)?

Nikhef scientists take climate problems serious

- Become a leader in reaching efficient solutions in our field of research

Travel:

- Reduce travel as much as possible, but not more. We do need to travel in our jobs!
- Use sustainable travel as much as possible
 - Try to avoid Compensate carbon footprint and easier to find information on travel sustainability optimization
- Travel time should be considered as working time
 - Allow first class travel in the train, in order to be able to work

Introduce public sustainability measures

- E.g. carbon footprint of Nikhef on our website

Standard vegetarian lunch and diners at Nikhef

PROFESSIONAL DEVELOPMENT

How can Nikhef best allow time for employees to get trained in new areas?

What role does technical and scientific training play for Nikhef staff? What kind of training should Nikhef a) provide itself

In what kind of training for staff can Nikhef invest and how?

How should we determine the success of the training/the quality of the training.

Further promote possibilities at Nikhef on

- Scientific training
- Personal development
- Technical training
 - E.g. Nikhef creates a calendar dBase of all possibilities

Each scientist should make a POP, regularly revise with supervisor

- Include training and personal development in the annual appraisal meetings

Support specific trainings

- Training on supervision for supervisors
- Academic training

NIKHEF COMMUNITY

How can we better integrate the non-Amsterdam based groups into Nikhef?
How to be represented at Physics@Veldhoven and others? Should there be a strategy on this?
Are the university partners integrated enough in our Nikhef community?
Should we include technicians at Nikhef Jamboree? What is the best time for this meeting?

Continue with the heyday every year (besides the jamboree)

- Scientific staff to integrate, discuss and initiate new connections

Organise a specific body with university team leaders and nikhef/nwo-i?

- OPL does not work to discuss issues between university partners and NWO-i

Stimulate monthly group meetings in person

- Keep all meetings with hybrid infrastructure

Organise the Nikhef colloquium in relation with university activities

- Install a 'nikhef-wide colloquium' with virtual attendance

INTEGRATION OF RECOGNITION AND REWARDS

How can we reconcile the need for international recognition for our work with the sustainability goals (less travel?)

How can Nikhef help people in large collaborations gain visibility and recognition?

What are the pro's and con's of offering more rewards?

What rewards could Nikhef offer to recognize good work?

How can more technical work be valued and recognized?

The topic is complex as it depends on the science/group/level

- Annual evaluation (appraisal meetings) are appreciated
- Get better recognition for R&D scientists and engineers
- Create a network - collect and maintain the importance of detector development.

Stimulate individual contributions in large collaboration

- Invite the feedback of the ECR panel

SOCIETAL IMPACT AND OUTREACH

How can Nikhef help refine the narrative of your public explanation of your research?

Which existing outreach efforts (by universities or CERN or other groups) do you think Nikhef should join or participate in more than we currently do.

Important topic for our field that needs dedicated people

- Identify a contact person for secondary school (visits)
- Stimulate social media - but maybe raise awareness on the use of e.g. Tik-tok
 - Discuss this further at Nikhef?
- Create a flagship outreach project
- Training and sharing on typically what you can do

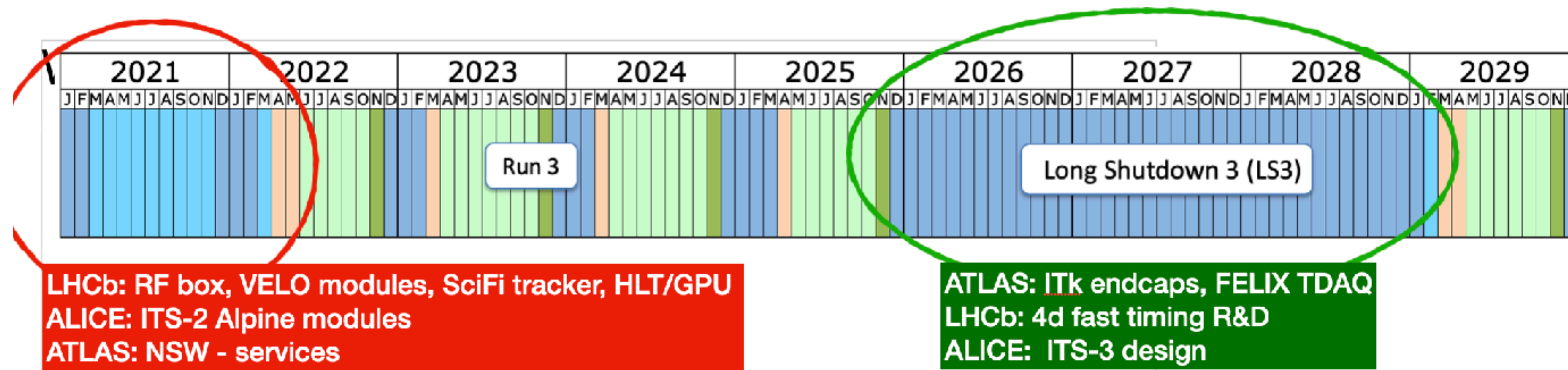
Create a transparent repository on outreach material

- Collect presentations and movies etc

LHC PROGRAMS

ATLAS, LHCb & ALICE remain *high priority core* activities for Nikhef

- The physics potential for HL-LHC has clearly been demonstrated
- Full support for the upgrades of LS2 and LS3 (which is funded)
- Nikhef will support the LHC programs where we can
 - Some funding from the mission budget has been reserved



Note: Electricity bill CERN is a major concern

- to decrease consumption the yearly runs will be shortened by 20%

LHC RELATED

Lets be careful that 'neighboring activities' do not fall in the cracks

FASER

- A nice initiative where (young) people can be creative, and its cheap
 - Not a new program: I would like to see a view from the LHC programs

Forward Physics Facility

- Same story here. Nice initiative but I am reluctant to fully support
 - Not clear how much Nikhef instrumentation activity is involved
 - What is the view of the LHC programs?

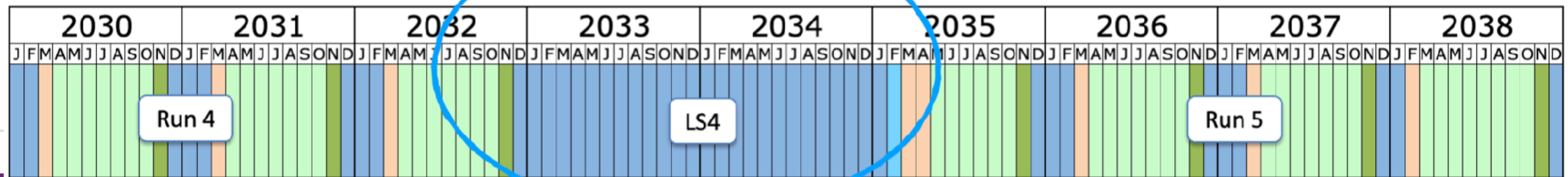
HL-LHC

Nikhef intends to join the LHCb II (VELO-3), ALICE (ITS-3) and ATLAS (HGTD) upgrades foreseen for LS4

- However, Nikhef is for its concrete investment contribution dependent on the outcome of a national roadmap proposal. The outcome is expected in 2024.

This future program is of high priority for Nikhef

In line with ESPPU: ambitions on 4d fast timing tracking, R&D started
Joint efforts for ITS-3 (ALICE), HGTD (ATLAS), VELO-3 (LHCb)



Last updated: January 2022

NIKHEF PLANS TO INVEST IN 4D FAST TIMING

Detector R&D aligned for 3 LHC experiments

- New and fast silicon technologies for the trackers of ALICE, LHCb and ATLAS

Our route to beyond LHC

- Need further collaboration

Part of the DR&D roadmap

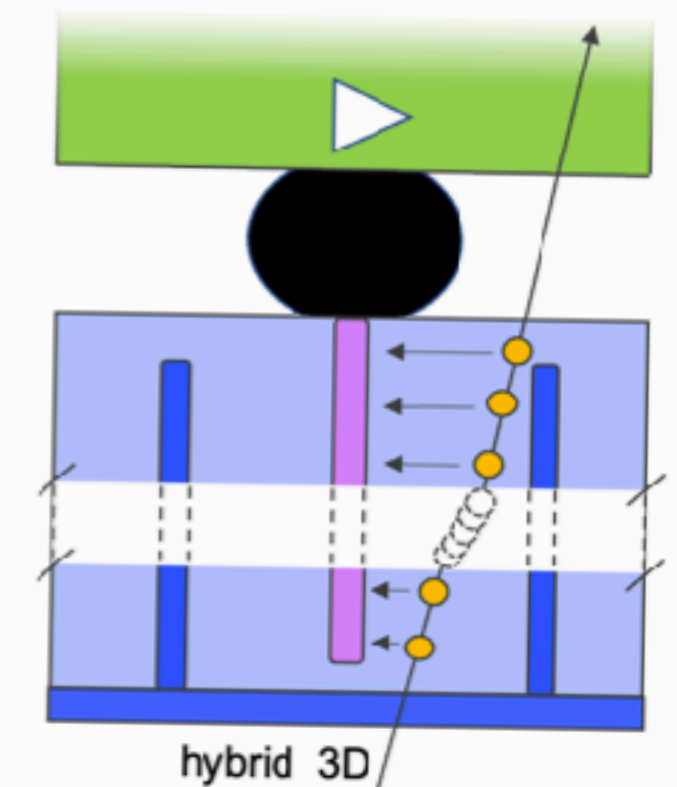
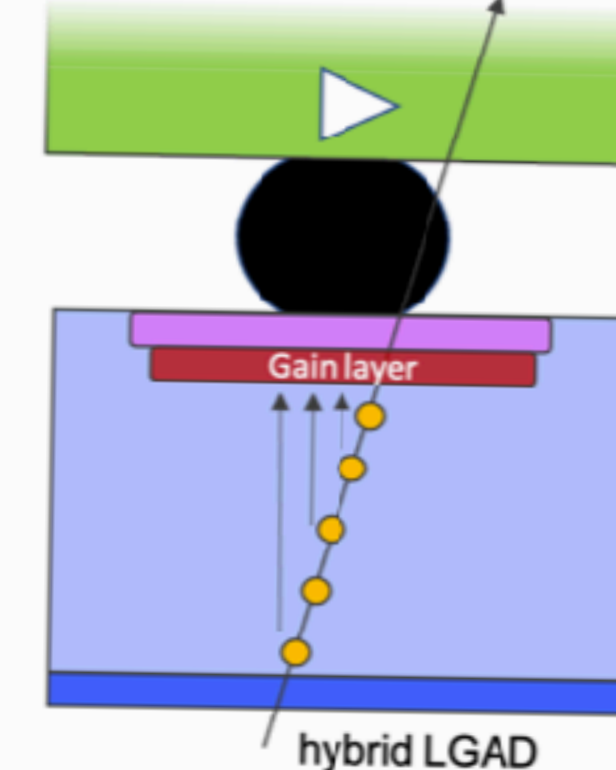
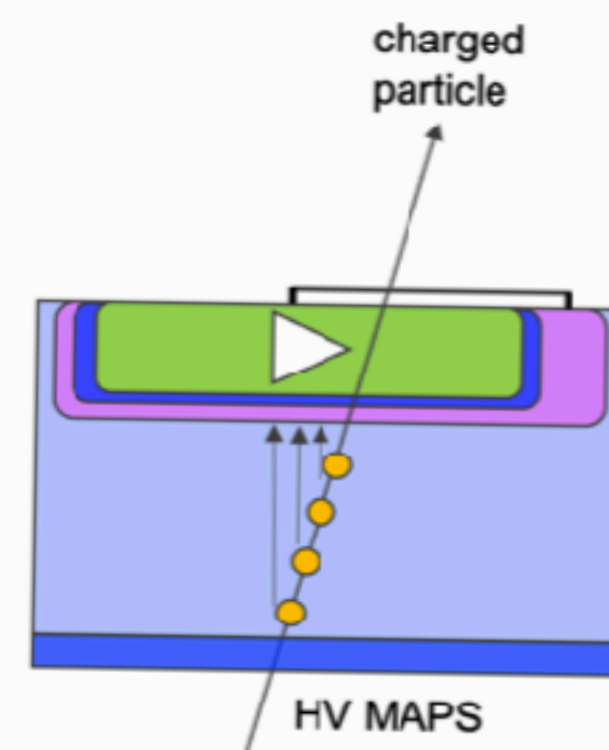
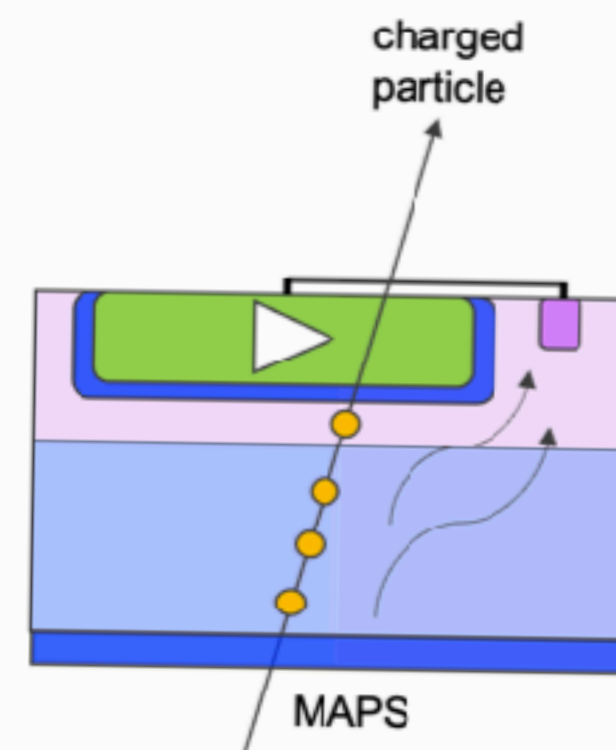
- ECFA & LDG taskforce

R&D

ECFA 2018 on R&D

To remain at the forefront in Europe, we encourage NIKHEF to sustain its mission for a strong R&D component in instrumentation, to foster a sense of innovation and to prepare, in a timely fashion, its workshops for the future beyond the already foreseen projects.

R&D group investigates all 4 technologies
(together with the experiments of course)



FUTURE COLLIDER BEYOND HL-LHC

The future of accelerator physics beyond HL-LHC is still open

- FCC-ee/pp is still far away (>2048)
- Alternative scenario's at CERN should be investigated by physics motivation, realism and sustainability challenges
 - Alternatives to FCC, like LHCeP, have not been fully explored yet

Nikhef: actively participate in discussions beyond HL-LHC

- The initiative lies in hands of individuals in the Nikhef LHC groups
 - E.,g. we need better understanding of the benefit of a higgs factory after HL-LHC
 - No top-down approach here - I invite the LHC programs to organise this

NEUTRINO PHYSICS

KM3NeT is really taking shape

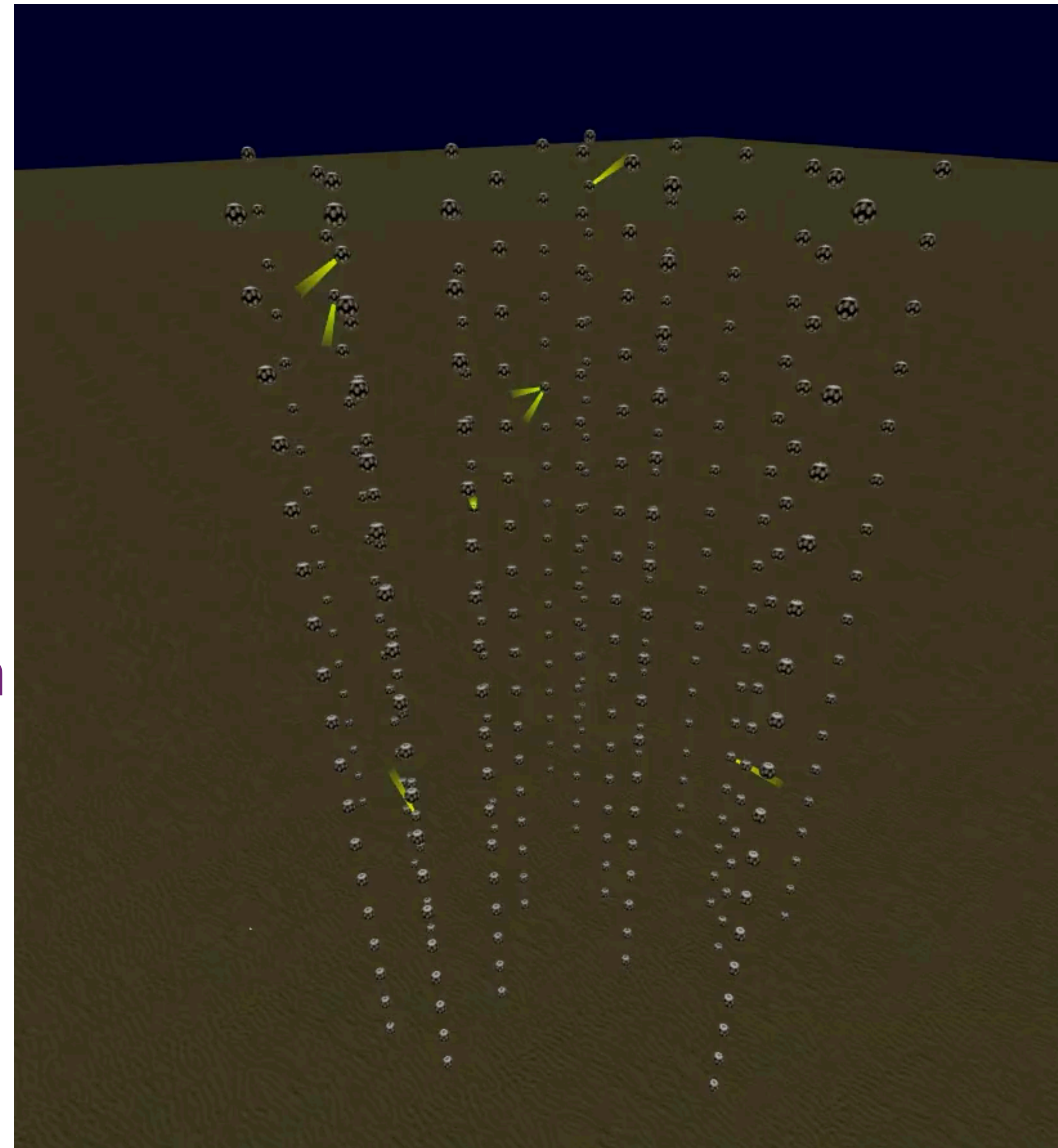
- Good prospects for AISBL in 2023
- Italy funded ARCA by large amount

For Nikhef I see

- Expt with largest Nikhef involvement
- We keep the KM3NeT production lab open
 - Even with investments by others (e.g. Italy)
 - Best effort with our available manpower

Prepare for involvement in DUNE

- Full support for roadmap proposal 2023
 - We cannot do much w/o this funding



DARK MATTER & LOW COUNTING EXPTS

XENONnT with large Nikhef involvement

- Full support for exploitation

Future of DM group

- Involvement LZ/DARWIN crucially depends on the roadmap 2023
- PTOLEMY
 - Currently NWA funding - no sustainable funding
- KamLAND
 - Minor personal effort - no investment - should be promoted a bit more

We may benefit from new detector techniques (quantum detectors)

- Initiative lies within the DM group
 - Explore & exploit further collaboration with e.g. SRON or TU/d

UHECR

Auger-Prime is in excellent shape

- Upgrades are fully funded (SSD and Radio)
 - Netherlands for 27% funder of the upgrade - largest single country contribution
 - Radio is almost completely from the Netherlands
- Current MoU runs until 2024
 - This is too early to stop exploitation
 - We are preparing a continuation of Auger with Nikhef involvement beyond 2024
- RU has significantly invested in staff colleagues

The follow-up GRAND remains uncertain

- I am really hesitant for constructing infrastructure on Chinese soil
 - Alternatives have to be investigate better

TABLE TOP EXPERIMENTS IN PARTICLE PHYSICS

We saw the impressive progress on eEDM

- We have a marvelous *in-house* experiment in Groningen
 - Close to first low intensity beams
- Funding for the coming period is secured
 - ENW-XL, VICI & M2

Are we exploring the physics case enough?

- Question to our theory friends: further determine the impact of eEDM
 - Also in light of the muon anomaly at FermiLab?

Widen the scope as ‘table top experiment for particle physics’

- E.g. include anti-protons (alpha expt), parity violation in molecules, etc
 - Keep enough focus!

GRAVITATIONAL WAVES

Amount of activities in GW is huge

- There is an enormous amount of work ongoing
 - Lot of stress at the GW group - with a number of silent & very hard workers / experts
 - Netherlands is really expert in many areas of GW instrumentation
- Organisation: I think GW is not fully connected in the Netherlands
 - Nikhef staff here in Groningen, or Nijmegen, participate in Dutch network?

Virgo

- Exploitation
 - Physics at Virgo/LIGO has full support, looking forward to O4 (May 23). Reconsider after 2025
 - Plans for upgrades O5 with ENW-WI
- Beyond O5 toward ET
 - ETpathfinder should be positioned better in this discussion (dominated by IT)

BIDBOOK EMR SITE

Team-up

- Maastricht as the centre of activities - headquarters Einstein Telescope

Crucial ingredients

- Geology: demonstrably suitable site with minimal risk
- Planning, spatial planning, environmental law and communication in place
- Financial commitment partner countries (especially B&D)
- Science, engineering and civil engineering crystallised
- Valorisation and impact - national and regional

ETpathfinder: 'proof-of-principle' technology & engineering

- ETpathfinder will have to be a success!

GRAVITATIONAL WAVES

Issues relevant for the future plans

- Involvement of astronomy community
 - Role for the CAN, and even further dedicated effort to get astronomy community further involved in the Einstein Telescope plans

Involvement in LISA for QPD instrumentation

- Initiative lies with SRON and astronomy
 - Current roadmap initiative is under scrutiny
 - Keep it small: we should remain focused on Virgo, ETpathfinder & ET

OTHER PROGRAMS

Theory

- Keep the excellent reputation on high precision calculations
 - Understanding and interpretation of anomalies in the current data;
- Development of the theoretical framework for precision tests of the Standard Model and new BSM searches at the HL-LHC and future colliders and experiments;
 - Guide us in the motivation on the future beyond HL-LHC
- Exploration of new directions in neutrino and astroparticle physics and cosmology;
 - Include GW in the program, inclusive theory community in the Netherlands
- Theoretical physics applications of artificial intelligence and quantum computing.
 - is close connection to PDP, LHC experiments

OTHER PROGRAMS

PDP

- Expand the reach of our applied advanced computing R&D in algorithms and (GPU) accelerators; include AI approach
- Exploratory work on Quantum Computing will be pursued
- Drive technology R&D for data-intensive processing
- Enable seamless collaboration for data-intensive experiments and the open science era.
- Operate a leading edge e-Infrastructure, both for structured ‘collaboration-wide’ computing and as an analysis facility to shorten ‘time-to-results’ for Nikhef researchers.
 - This infrastructure will constitute at the same time the validation environment for all three PDP action lines: applied advanced computing, advanced computing technologies, and the infrastructure for collaboration.

TOPICS THAT NIKHEF WILL NOT ACTIVELY DO

In my view, we should be reluctant to get involved

- i.e. no instrumentation effort, potentially small effort on data analysis
- (Hard) photon APP, i.e. CTA - or even SKA
 - This is in the domain of astronomy
- CMB physics
 - This is a highly specialized research topic for which we miss (instrumentation) expertise
 - SRON should take the initiative if at all
- Electron-Ion collider Brookhaven (EIC)
 - interesting but we cannot afford instrumentation help - only individual data analyses