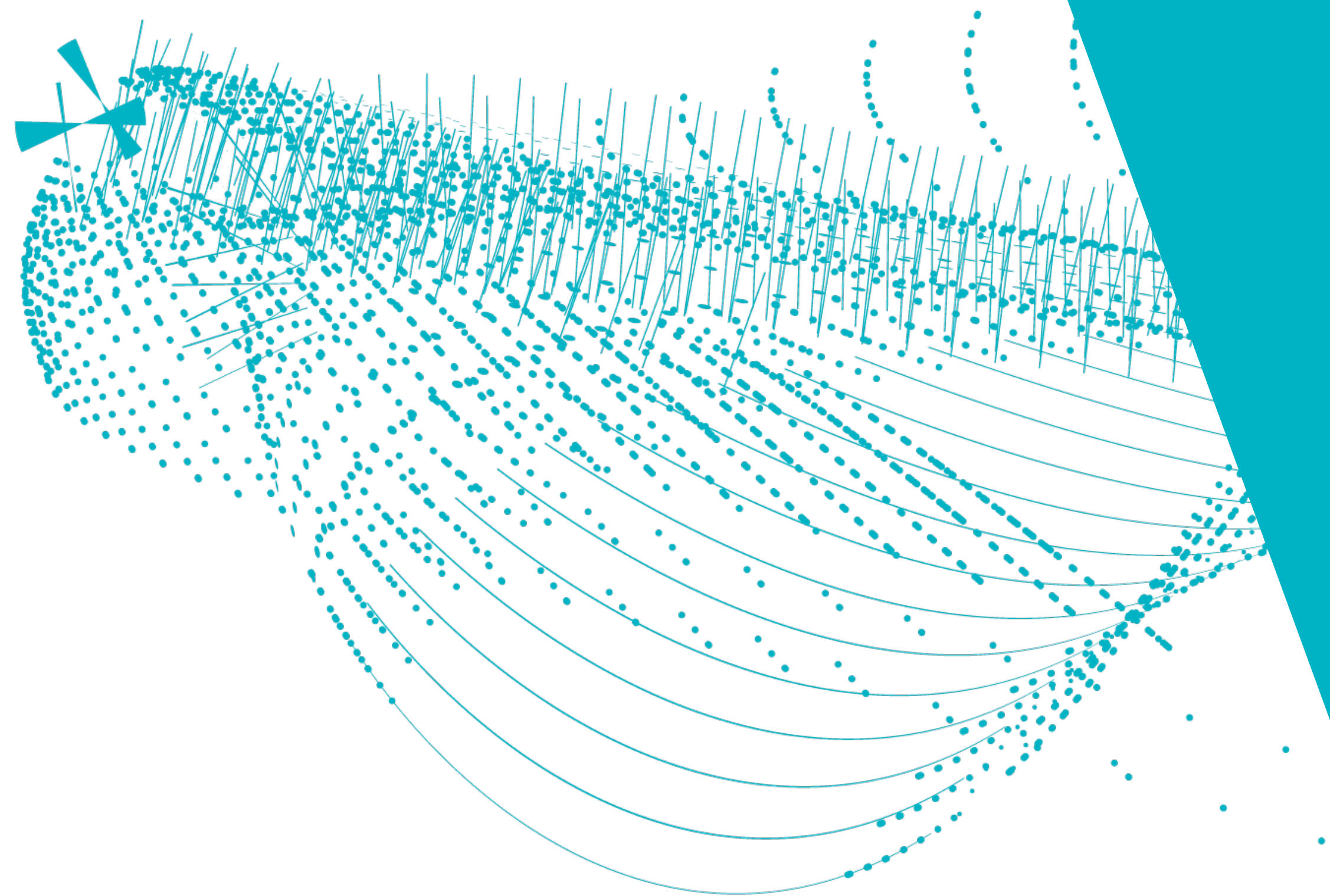




STAFF MEETING 9 MARCH 2020

THEORY NEWS MARCH 2020

Robert Fleischer

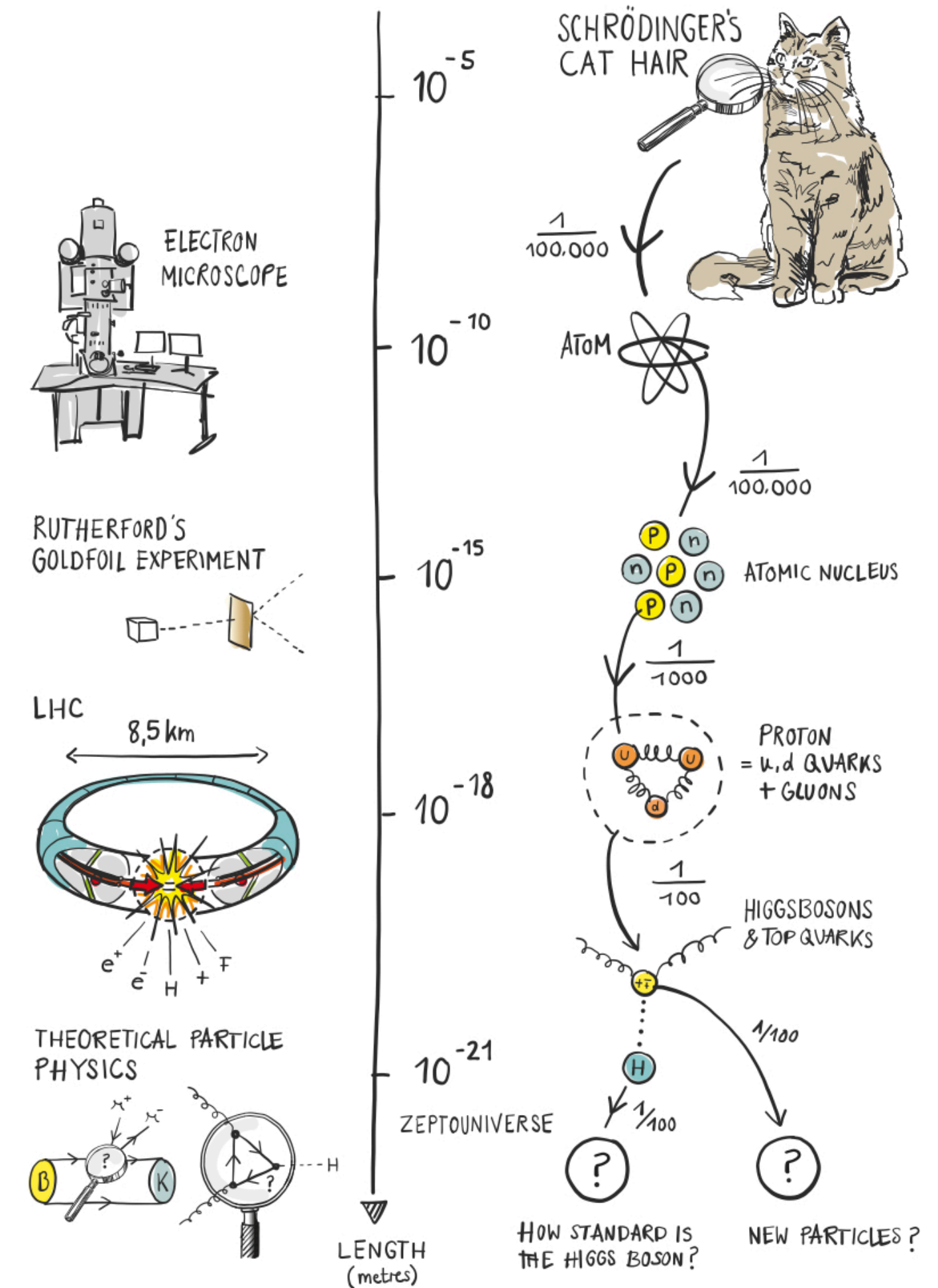


ENW GROOT PROPOSAL

• Research topic:

A journey into the zeptouniverse:

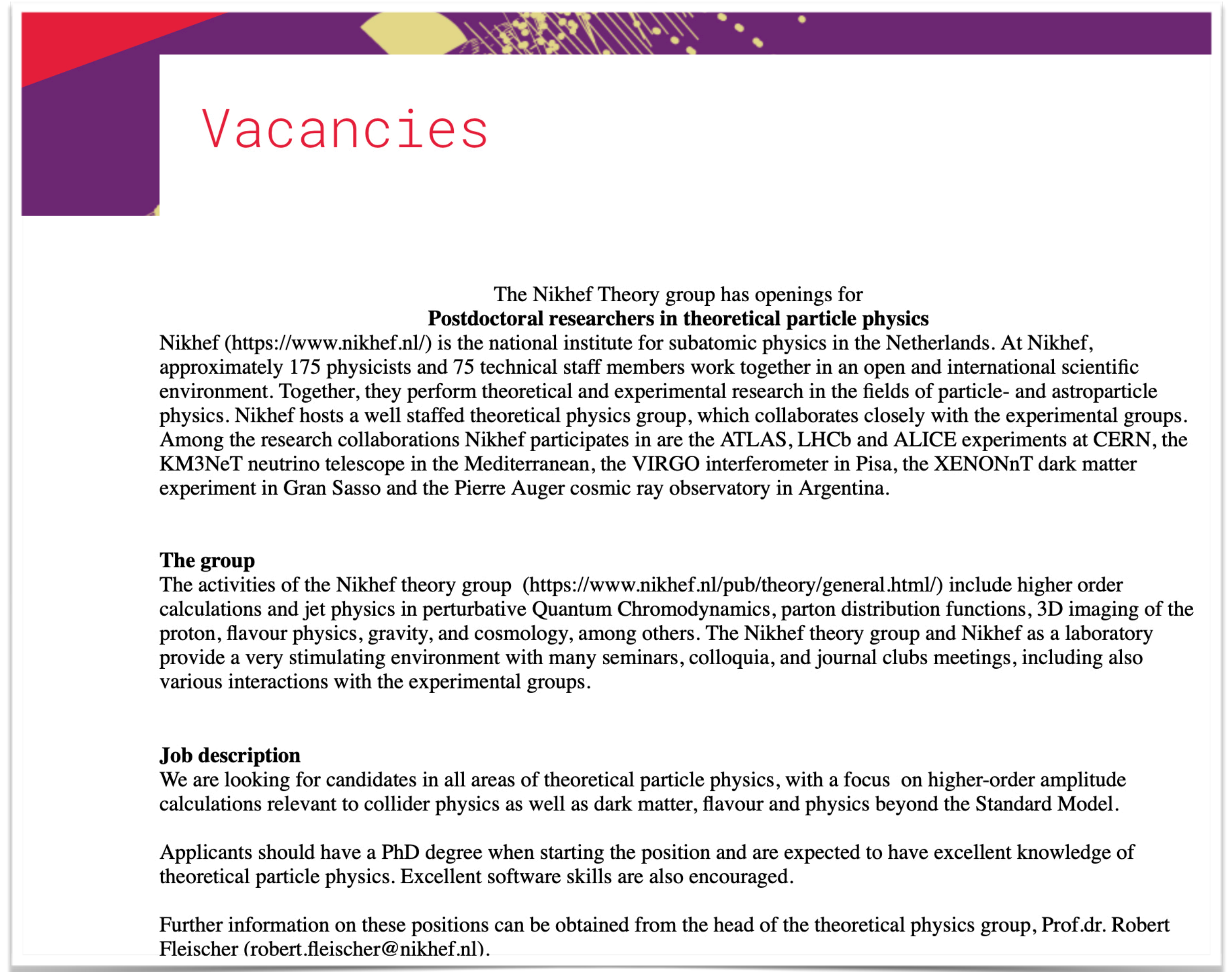
- After a very promising start finally not granted by NWO.
- Will submit again in the next round...



[Congratulations to ATLAS to their ENW Groot!]

POSTDOC POSITIONS

- We have filled two postdoc positions for this autumn:
 - Higher-order amplitude calculations (Vidi grant Franz Herzog):
Andrea Pelloni (PhD @ ETHZ)
 - Dark matter (Vidi Kallia Petraki):
Anastasiia Filimonova (PhD @ Univ. Heidelberg)



Vacancies

The Nikhef Theory group has openings for **Postdoctoral researchers in theoretical particle physics**

Nikhef (<https://www.nikhef.nl/>) is the national institute for subatomic physics in the Netherlands. At Nikhef, approximately 175 physicists and 75 technical staff members work together in an open and international scientific environment. Together, they perform theoretical and experimental research in the fields of particle- and astroparticle physics. Nikhef hosts a well staffed theoretical physics group, which collaborates closely with the experimental groups. Among the research collaborations Nikhef participates in are the ATLAS, LHCb and ALICE experiments at CERN, the KM3NeT neutrino telescope in the Mediterranean, the VIRGO interferometer in Pisa, the XENONnT dark matter experiment in Gran Sasso and the Pierre Auger cosmic ray observatory in Argentina.

The group
The activities of the Nikhef theory group (<https://www.nikhef.nl/pub/theory/general.html/>) include higher order calculations and jet physics in perturbative Quantum Chromodynamics, parton distribution functions, 3D imaging of the proton, flavour physics, gravity, and cosmology, among others. The Nikhef theory group and Nikhef as a laboratory provide a very stimulating environment with many seminars, colloquia, and journal clubs meetings, including also various interactions with the experimental groups.

Job description
We are looking for candidates in all areas of theoretical particle physics, with a focus on higher-order amplitude calculations relevant to collider physics as well as dark matter, flavour and physics beyond the Standard Model.

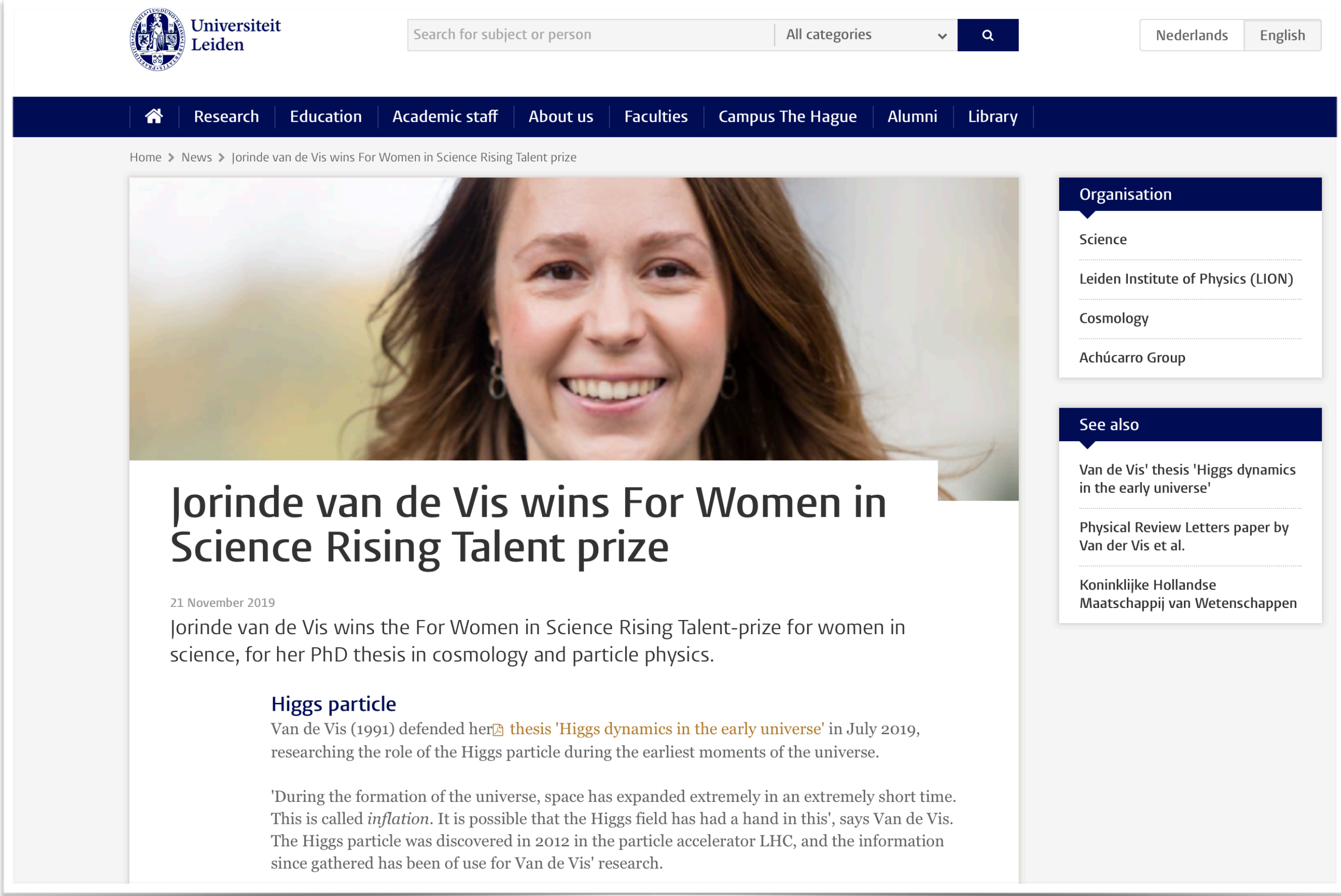
Applicants should have a PhD degree when starting the position and are expected to have excellent knowledge of theoretical particle physics. Excellent software skills are also encouraged.

Further information on these positions can be obtained from the head of the theoretical physics group, Prof.dr. Robert Fleischer (robert.fleischer@nikhef.nl).

FOR WOMEN IN SCIENCE RISING TALENT PRIZE

Jorinde van de Vis [now DESY] received the “For Women in Science Rising Talent Prize” for her PhD thesis [Van Holten/Postma]:

Many congratulations!




The screenshot shows a news article on the Universiteit Leiden website. The article is titled "Jorinde van de Vis wins For Women in Science Rising Talent prize" and is dated 21 November 2019. The article text states: "Jorinde van de Vis wins the For Women in Science Rising Talent-prize for women in science, for her PhD thesis in cosmology and particle physics." A sub-section titled "Higgs particle" provides more detail: "Van de Vis (1991) defended her thesis 'Higgs dynamics in the early universe' in July 2019, researching the role of the Higgs particle during the earliest moments of the universe." A quote follows: "'During the formation of the universe, space has expanded extremely in an extremely short time. This is called *inflation*. It is possible that the Higgs field has had a hand in this', says Van de Vis. The Higgs particle was discovered in 2012 in the particle accelerator LHC, and the information since gathered has been of use for Van de Vis' research." The right sidebar of the website lists the "Organisation" as Science, Leiden Institute of Physics (LION), Cosmology, and Achúcarro Group. It also includes a "See also" section with links to "Van de Vis' thesis 'Higgs dynamics in the early universe'" and a "Physical Review Letters paper by Van der Vis et al." from the Koninklijke Hollandse Maatschappij van Wetenschappen.

NATIONAL SEMINAR THEOR. HIGH-ENERGY PHYSICS

Friday, 13 March
(Z011)

Colloquium by Giulia
Zanderighi (MPI Munich):
Precision Physics @ LHC





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NATIONAL SEMINAR THEORETICAL HIGH ENERGY PHYSICS (THEP)

Date: Friday, 13 March 2020

Speakers: Tanja Hinderer (UvA)
Giulia Zanderighi (Max Planck Intstitute, Munich)
Daan Meerburg (RUG)
Chris Couzens (UU)

Location: Nikhef-CWI, Room Z011, Science Park 105, 1098 XG Amsterdam
[Information on how to reach Nikhef.](#)
Note there is a train station: Amsterdam Science Park.

Schedule:

- 09:45 Coffee/tea
- 10:15 Tanja Hinderer (UvA): [Exploring frontiers in subatomic physics with gravitational waves](#)
- 11:15 Giulia Zanderighi (Max Planck Intstitute, Munich): [Precision at the LHC: why and how](#)
- 12:15 Lunch
- 14:00 Daan Meerburg (RUG): [A new decade in cosmology](#)
- 15:00 Coffee/tea
- 15:15 Chris Couzens (UU): [AdS/CFT, Black Holes and Extremization principles](#)
- 16:15 Borrel/drinks

Local organizers: For questions or suggestions, please contact one of the organizers:

Wouter Waalewijn (NIKHEF)
tel: +31 (0)20 5255773
e-mail: wouterw@nikhef.nl

Marieke Postma (Nikhef)
tel.: +31 (0)20 5925128
e-mail: mpostma@nikhef.nl

Thomas Grimm (UU)

THEORY MEETS EXPERIMENT



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Theory Meets Experiment

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The “Theory Meets Experiment” events are organised by Robert Fleischer (Theory), Tristan du Pree (ATLAS) and Marcel Merk (LHCb). These topical Nikhef mini workshops usually take place on a Friday afternoon, sometimes complementing a more general colloquium in the morning, and have the aim to further stimulate interactions and discussions between the theory and ATLAS/LHCb communities. All students (MSc, PhD), postdocs and scientific staff physicists of the corresponding groups are welcome to join. If you would like to receive the announcements of these events by email, please subscribe to the Nikhef colloquium email list by following the link on the right (i.e. right below “Files”). For more information and suggestions of possible topics and speakers, please contact the organisers.

👤 Managers

- 👤 Berger, J.
- 👤 Fleischer, R.
- 👤 Merk, M.
- 👤 du Pree, T.

📁 Files

➤ [more information](#)

May 2020

- 📅 15 May [Mini Nikhef Workshop: Theory Meets Experiment - High-energetic neutrino scattering processes and interactions of cosmic rays](#)

March 2020

- 📅 20 Mar [Mini Nikhef Workshop: Theory Meets Experiment - SMEFT for Higgs and Top](#)

There are 6 events in the past. [Show them.](#)

Suggestions are very welcome!


FUTURE FESTIVITIES: *RESERVE THE DATES*

UITNODIGING AFSCHEIDSREDE

prof.dr. P.J.G. Mulders

THE MANY FACES OF THE STANDARD MODEL OF PARTICLE PHYSICS
Een andere kijk op de wereld

VRIJDAG
29 MEI 2020




VU VRIJE UNIVERSITEIT AMSTERDAM

Filter iCal export More Europe/Amsterdam

Bert Schellekens Fest

Friday, 10 July 2020 from 10:00 to 19:00 (Europe/Amsterdam)
at **Nikhef (H331)**

Description



Retirement Bert Schellekens

Organisers:
Robert Fleischer (Nikhef, Amsterdam)
Beatriz Gato Rivera (IFF-CSIC, Madrid)

Program for the scientific meeting of Bert's Fest on July 10th, 2020

Nikhef, Seminar Room: H331

NOTE: the two talks in the morning are intended for a general audience of particle physicists, theorists as well as experimentalists.

(*) To be confirmed

Friday, 10 July 2020

10:00 - 10:15	Welcome with coffee, tea, cookies,...
10:15 - 11:00	Dieter Lust, LMU and MPI, München (Germany) <i>"New Cloths for the Landscape"</i>
11:00 - 12:00	Nikhef Colloquium - Elias Kiritsis, APC, Paris (France) and University of Crete (Greece) <i>"String Theory, Particle Physics and Emergent Gravity"</i>
12:00 - 13:30	Lunch

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THE EUROPEAN
PHYSICAL JOURNAL C



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Regular Article - Theoretical Physics

Testing lepton flavour universality with (semi)-leptonic $D_{(s)}$ decays

Robert Fleischer^{1,2}, Ruben Jaarsma¹, Gabriël Koole^{1,3,a}

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² Faculty of Science, Vrije Universiteit Amsterdam, 1081 HV Amsterdam, The Netherlands
³ Max Planck Institute for Physics, Föhringer Ring 6, 80805 Munich, Germany

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Source terms for electroweak baryogenesis in the vev-insertion approximation beyond leading order

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E-mail: mpostma@nikhef.nl, jorinde.van.de.vis@desy.de

Parton Distributions in Nucleons and Nuclei

Jacob J. Ethier^{1,2} and Emanuele R. Nocera^{1,*}

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Nikhef 19-055

Dark matter bound state formation via emission of a charged scalar

Ruben Oncala and Kalliopi Petraki

Nikhef,
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Sorbonne Université, CNRS, Laboratoire de Physique Théorique et Hautes Energies (LPTHE),
UMR 7589 CNRS & Sorbonne Université,
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The leading jet transverse momentum in inclusive jet production and with a loose jet veto

Darren J. Scott^{a,b} Wouter J. Waalewijn^{a,b}

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^b Nikhef, Theory Group, Science Park 105, 1098 XG, Amsterdam, The Netherlands
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13 Dec 2019

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Keywords

Quantum Chromodynamics, Parton Distribution Functions, Proton Spin, Nuclear Medium, Collider Physics, Future Experiments

Abstract

We review the current status of Parton Distribution Function (PDF) determinations for unpolarized and longitudinally polarized protons and for unpolarized nuclei, which are probed by high-energy hadronic scattering in perturbative Quantum Chromodynamics (QCD). We present the established theoretical framework, the experimental information, and the methodological aspects inherent to any modern PDF extraction. Furthermore, we summarize the present knowledge of PDFs and discuss their limitations in both accuracy and precision relevant to advance our understanding of QCD proton substructure and pursue our quest for precision in the Standard Model and beyond. In this respect, we highlight various achievements, discuss contemporary issues in PDF analyses, and outline future directions of progress.

Stay tuned ...

