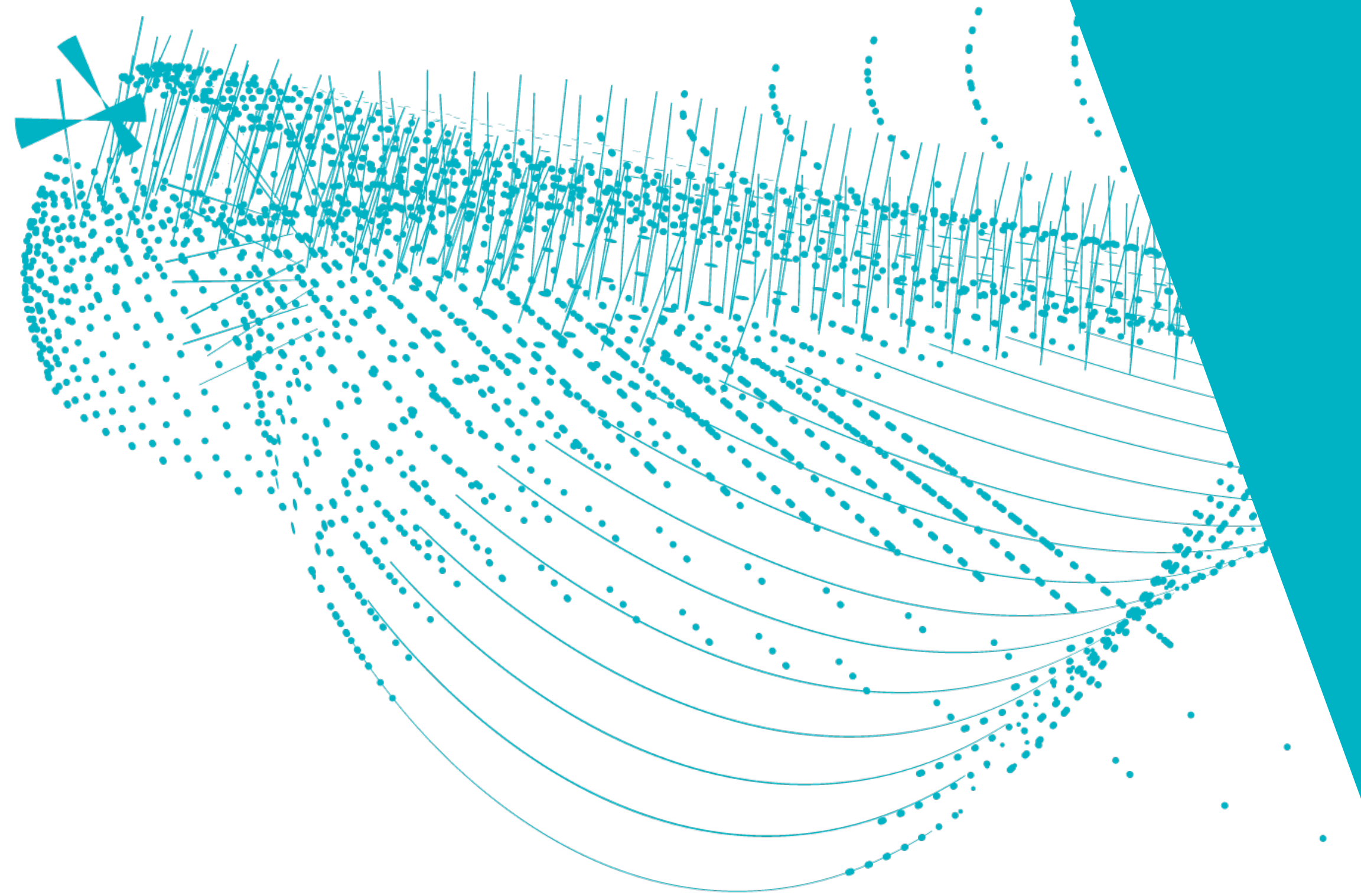




NIKHEF JAMBOREE, AMSTERDAM, 13-14 MAY 2024

# THEORY GROUP INTRODUCTION

Robert Fleischer





# NIKHEF THEORY GROUP WEBSITE:



PEOPLE RESEARCH ACTIVITIES OUTREACH SOFTWARE COMPUTING FOR STUDENTS VACANCIES CONTACT

ZOEKEN



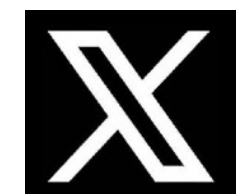
Theoretical physics at Nikhef

Are you following us?

[Instagram](#)



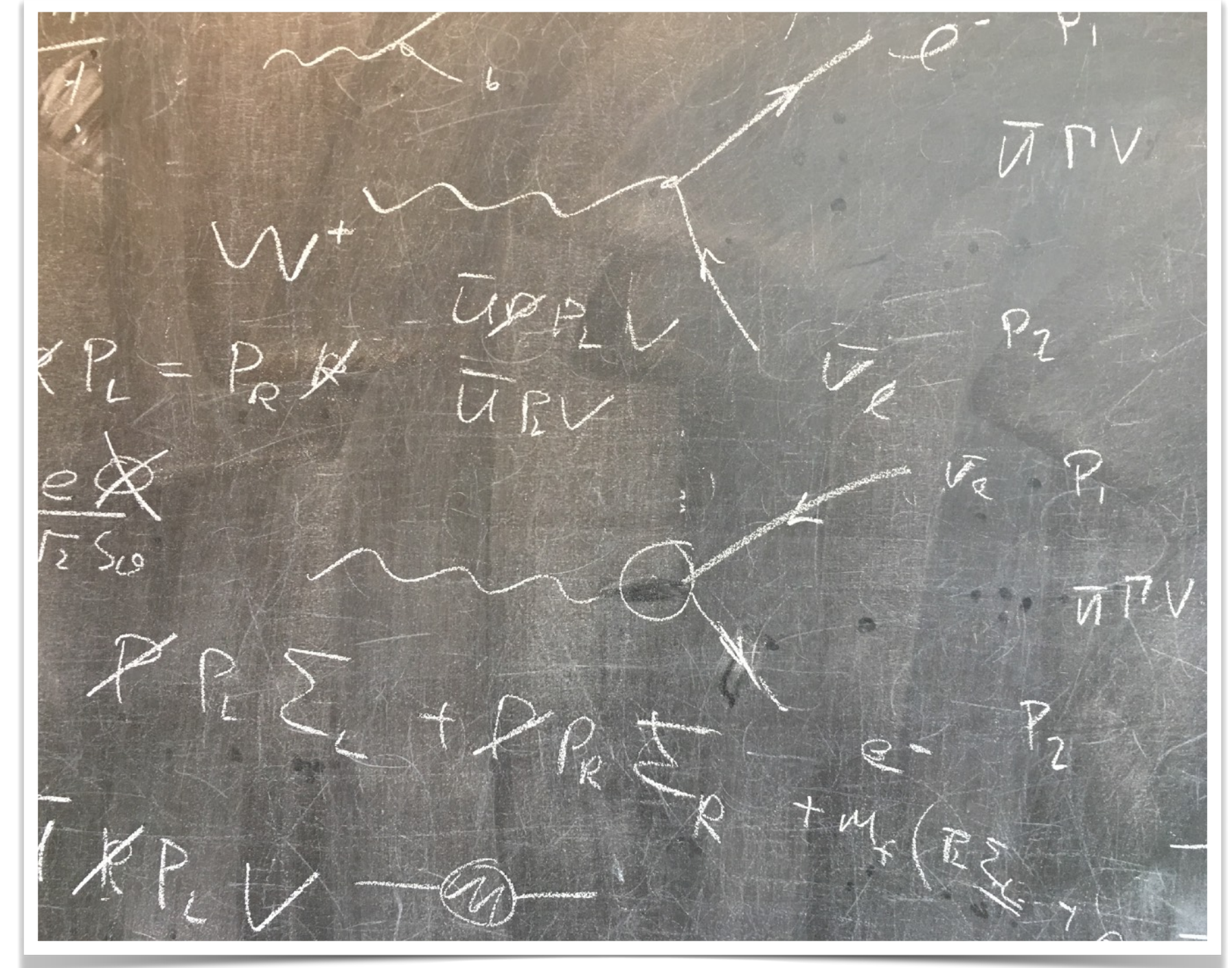
[X \(Twitter\)](#)





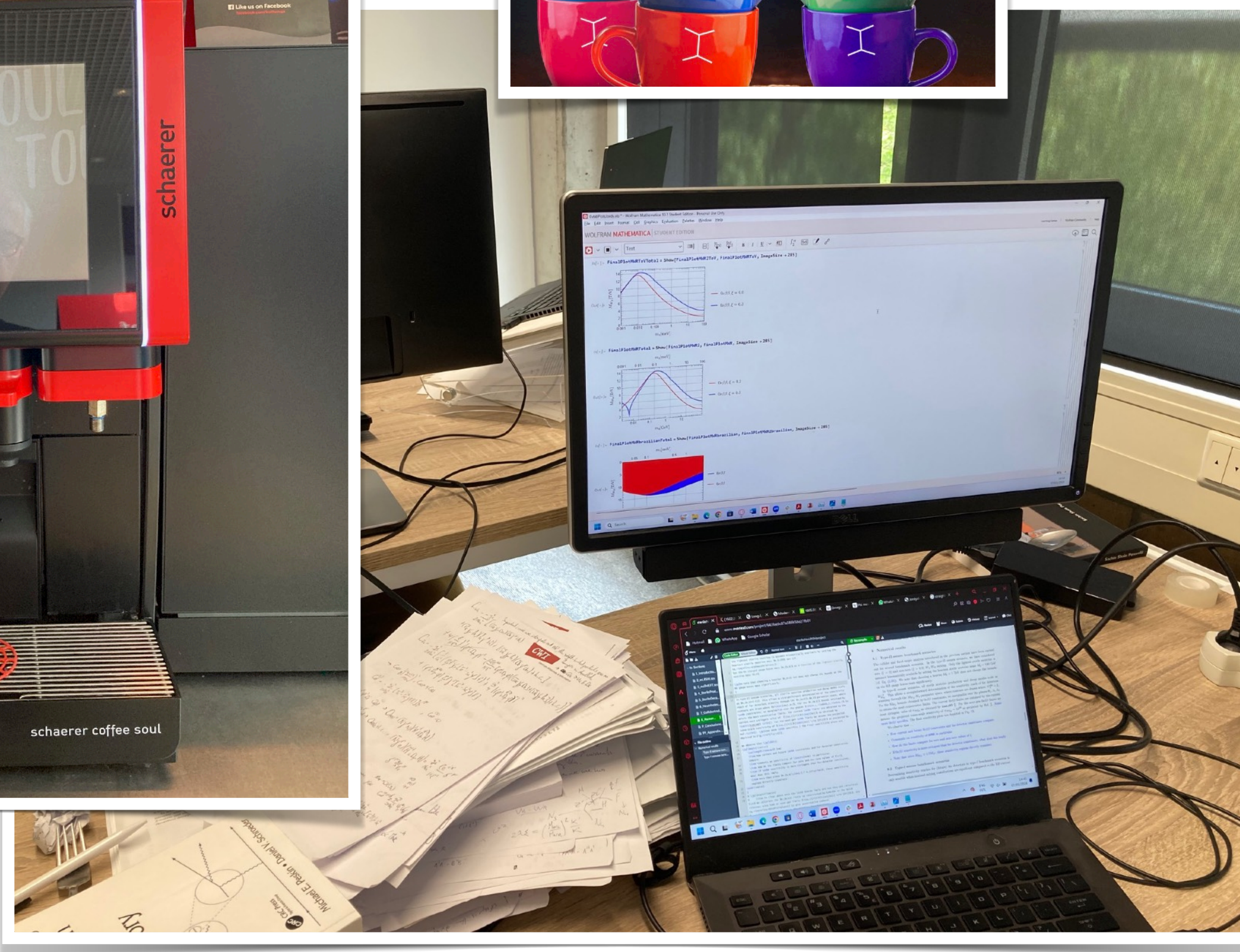
# RESEARCH & MISSION OF THE THEORY GROUP

- Broad spectrum of topics:
  - QCD and collider physics
  - Flavour physics: quarks & leptons
  - Dark matter
  - Cosmology
- Serves as a national centre for particle physics phenomenology.
- Exploit environment at Nikhef through close interactions with the experimental groups.





# “INSTRUMENTATION” FOR THEORETICAL PHYSICS



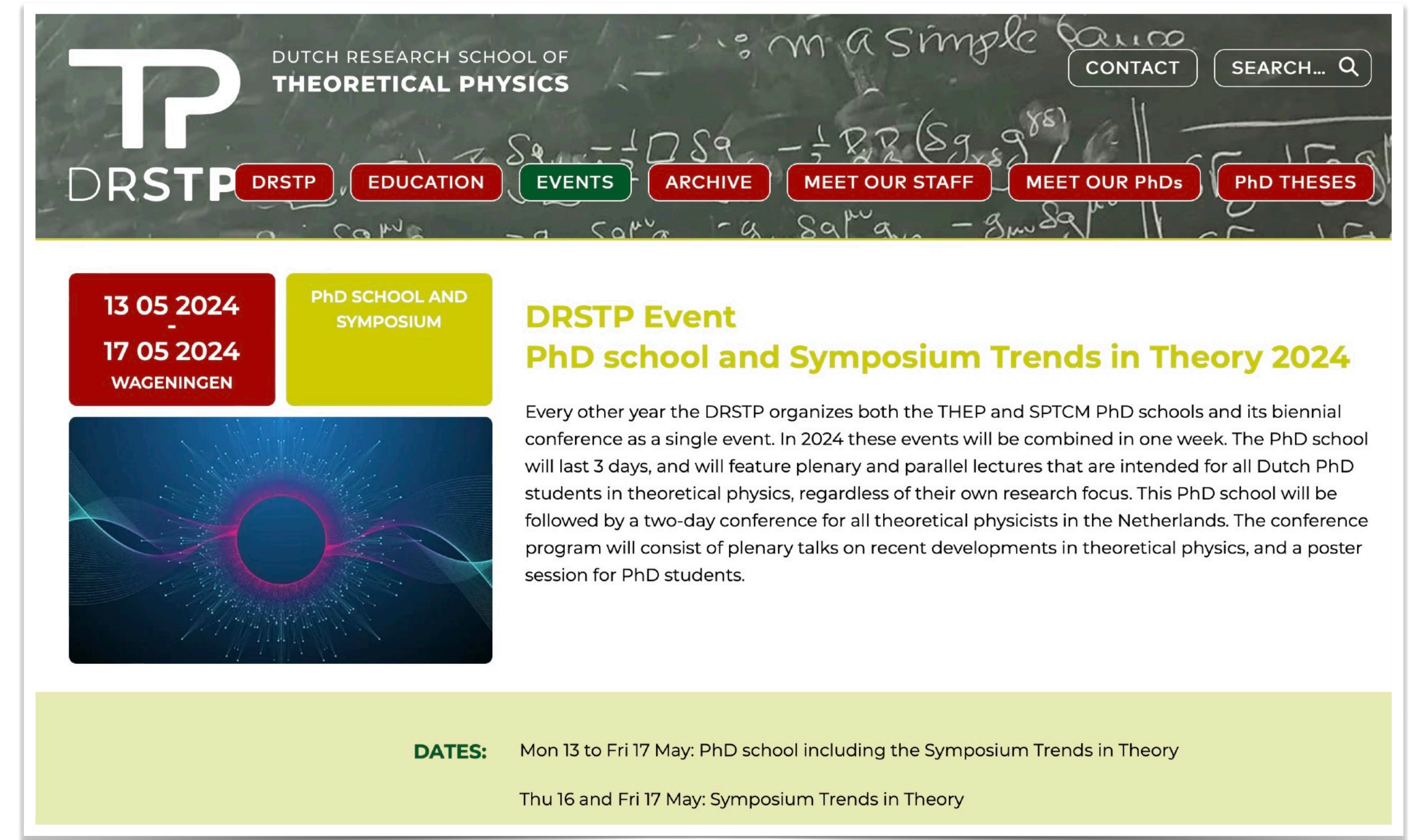
*Biggest resource/  
investment: talent!*





# BROAD REGULAR SCIENTIFIC ACTIVITIES

- Journal Clubs
- Theoretical Physics Seminars, ...
- Activities within the PhD graduate school (DRSTP):
  - National Seminar Theoretical High-Energy Physics (2-times/year)
  - Trends in Theory (every other year)
- Involvement in Nikhef activities:
  - Colloquium
  - Theory Meets Experiment, ...



The screenshot shows the website for the Dutch Research School of Theoretical Physics (DRSTP). The header includes the logo 'TP DRSTP' and navigation buttons for 'DRSTP', 'EDUCATION', 'EVENTS', 'ARCHIVE', 'MEET OUR STAFF', 'MEET OUR PhDs', and 'PHD THESES'. A search bar and a 'CONTACT' button are also present. The main content area features a red box with the dates '13 05 2024' and '17 05 2024' and the location 'WAGENINGEN', and a yellow box with the text 'PHD SCHOOL AND SYMPOSIUM'. Below this is a blue and purple abstract image. To the right, the text reads: 'DRSTP Event PhD school and Symposium Trends in Theory 2024'. A paragraph below explains that the DRSTP organizes both the THEP and SPTCM PhD schools and its biennial conference as a single event. In 2024, these events will be combined in one week. The PhD school will last 3 days, and will feature plenary and parallel lectures that are intended for all Dutch PhD students in theoretical physics, regardless of their own research focus. This PhD school will be followed by a two-day conference for all theoretical physicists in the Netherlands. The conference program will consist of plenary talks on recent developments in theoretical physics, and a poster session for PhD students. At the bottom, a green box contains the dates: 'DATES: Mon 13 to Fri 17 May: PhD school including the Symposium Trends in Theory' and 'Thu 16 and Fri 17 May: Symposium Trends in Theory'.



# “THEORY DAY” MEETINGS

- **Mini Workshops** to connect the Dutch theo/pheno community.
- Include a student session without staff members being present.
- Recent meeting in Nijmegen.

*Everyone interested is welcome to join!*





# MEETING BETWEEN THEORY AND DETECTOR R&D

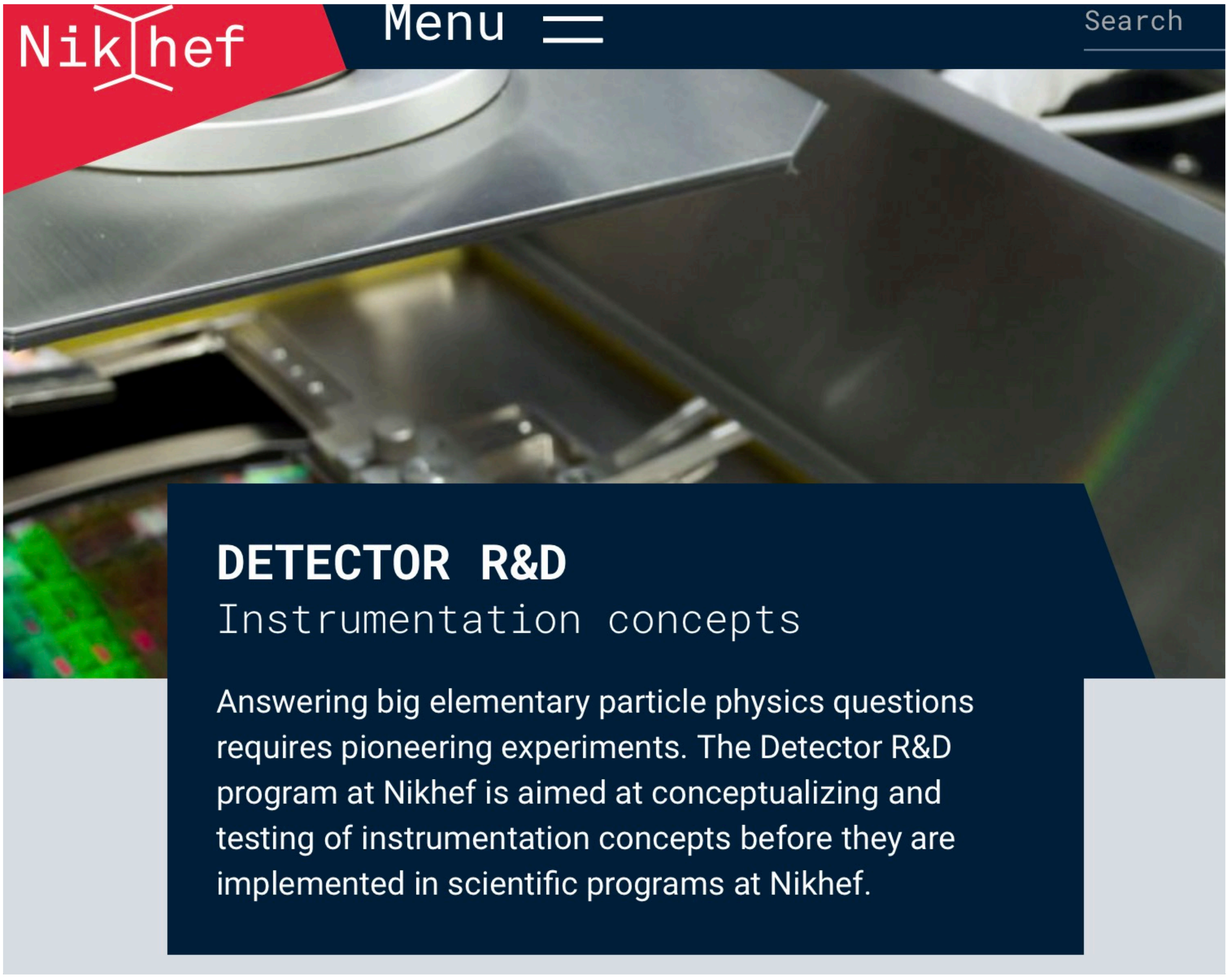
New initiative:

Theory meets Detector R&D:

*Focus on Fast Timing*

*Friday, May 31st*

[Martin Fransen & R.F.]



The image is a screenshot of the Nikhef website. At the top left is the Nikhef logo. To its right is a dark blue navigation bar with the word "Menu" and a hamburger menu icon. Further right is a search bar with the word "Search" and a magnifying glass icon. The main content area features a background image of a particle detector. Overlaid on this is a dark blue text box with white text. The text in the box reads: "DETECTOR R&D", "Instrumentation concepts", and a paragraph: "Answering big elementary particle physics questions requires pioneering experiments. The Detector R&D program at Nikhef is aimed at conceptualizing and testing of instrumentation concepts before they are implemented in scientific programs at Nikhef."

**Nikhef** Menu

**DETECTOR R&D**  
Instrumentation concepts

Answering big elementary particle physics questions requires pioneering experiments. The Detector R&D program at Nikhef is aimed at conceptualizing and testing of instrumentation concepts before they are implemented in scientific programs at Nikhef.



# SOCIAL “THEORY” EVENTS...





# SCIENTIFIC PROGRAMME OF THIS SESSION:

Key Words: *New Physics*

- Pieter Braat:

*Dark matter*

- Jaco ter Hoeve:

*SMEFT for future colliders*





# INTERACTION SESSIONS

- R.F.:

*Penguin Zoology (TH1 - Dam Kitchen)*

- Wouter Waalewijn:

*Factorization - or what you need to know about predictions for hadron colliders (TH2 - Dam Kitchen)*

- Maximilian Attems:

*Holographic shockwave collisions (TH3 - Spui)*