



Computing at Nikhef

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Theory group, Nikhef

09/11/2023, Welcome @ Nikhef Theory meeting

Big thanks to Juan!

For running being the CGO theory representative for many years...

... and for creating all these slides

Basics

As members of the Nikhef Theory group you should have obtained a **Nikhef computing account** which allows you to:

- 📌 Check your **Nikhef webmail**
- 📌 Use the local **printers and scanners**
- 📌 Access the **Nikhef computing network**, both from within and from outside Nikhef
- 📌 Use the **Nikhef VPN** to access paywalled journals and publications
- 📌 Take profit of computing tools for which **Nikhef has a subscription**: Zoom, Overleaf, ...
etc

Here we only mention Nikhef-related IT aspects. If you are **employed by universities** (UvA, VU, Maastricht, Nijmegen etc) you should have access to **additional services**

We are trying to get a mathematica license for non-uni employees...

Basics

Most information that you might need for **Nikhef IT-related matters** can be found here:

https://wiki.nikhef.nl/ct/Main_Page

In case of questions, send an email to the Nikhef IT helpdesk

helpdesk@nikhef.nl

or even better, go talk to them to their office (now that we are back to the same building!)

check also resources related about **working from home**:

https://wiki.nikhef.nl/ct/Working_remotely

IT equipment



If you need IT equipment and consumables, **it can be purchased via Nikhef**: tablets, headphones, keyboard, home office stuff. **Check with Program Leader beforehand.**

Please discuss with your supervisor grant budget holder.

Tablets can be purchased but only after approval of the Nikhef MT

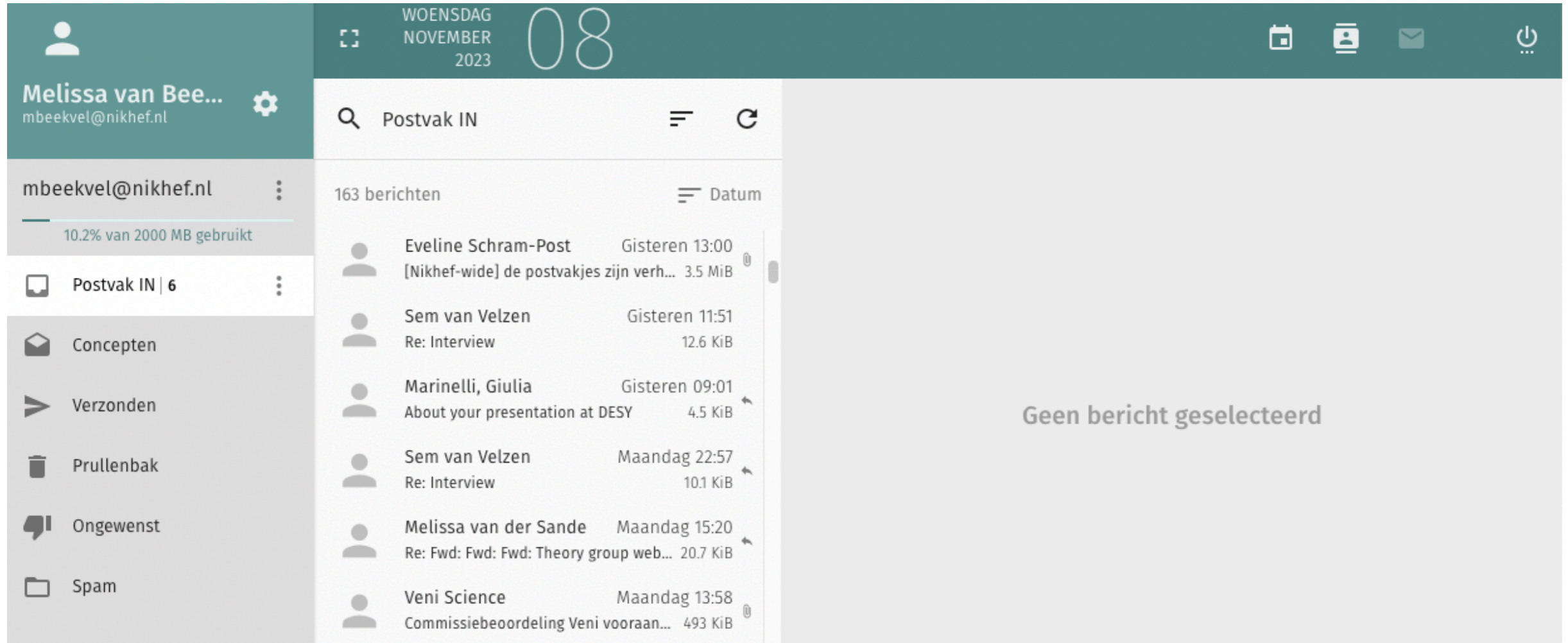
Never buy IT consumables via Amazon or bol.com and then claim reimbursement: make sure you request the IT helpdesk to purchase them on your behalf!



**loudspeakers/BRIOs/
OWLs can also be
purchased if needed
via Nikhef**

Webmail

Log in to your Nikhef webmail via **webmail.nikhef.nl**:



Important: even if you don't use the Nikhef email account, make sure to set up an **automated forward** to get emails from theory-wide, nikhef-wide, and so on (be aware that this is not encouraged/advised)

You might want to use an email client rather than the web interface

Please check with your peers that you are subscribed to all relevant email lists

Mattermost

The screenshot displays the Mattermost web interface. On the left is a dark sidebar with navigation options: 'Channels' (with a search bar for 'Find channel'), 'Insights', 'Threads', 'CHANNELS' (listing 'Off-Topic', 'qcd-eft', and 'Town Square'), and 'DIRECT MESSAGES' (listing 'Wouter Waalewijn', 'Jelle Groot', and 'Eric Laenen, Jordy de Vrie...'). The main content area shows the 'Town Square' channel with 320 members. The message history includes several system announcements: '@Emma Nielsen and @maximilian.attems joined the team.' (3:34 PM), '@Jelle Aalbers joined the team.' (9:27 AM), '@Johannes Michel joined the team.' (11:18 PM), and '@Boards joined the team.' (11:11 AM). A user message from Marco Kraan at 10:40 AM says 'New Entrance is almost ready: <https://youtu.be/6awu0P3D8JA?si=ahL2VNo5YAEYn9oE>' with 2 thumbs up. A message from Pascal at 9:57 AM says 'Norov location changed to positron'. The interface also features a 'New Messages' separator, a search bar at the top, and a rich text editor at the bottom with formatting options like bold, italic, link, and code.

we can create subgroups for projects, collaborations etc

Zoom

With a Nikhef account you benefit from a pro Zoom subscription (wo time limits)

https://wiki.nikhef.nl/ct/Video_conferencing_from_home

Introduction

There are various applications available for remote (video) communication. Nikhef advises using the Zoom tool. This tool can be used under Windows, Mac OSX and various Unix distributions and is user-friendly. The free version of Zoom offers meetings for up to only 40 minutes, so Nikhef has purchased Business licenses with which meetings can be organized for longer. Getting your own license to act as a host requires an administrative action from the helpdesk. You do not need a license to join as a participant. If you need a license, send an email to helpdesk-at-nikhef.nl and we will look into it.

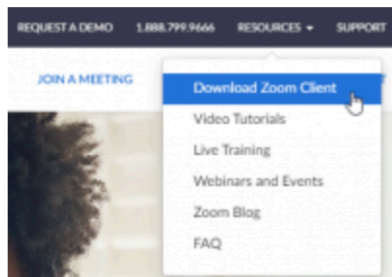
To manage your Nikhef Zoom account, use the [Nikhef Zoom page](#), backed by our usual SSO login.

[Read on the Intranet pages about Nikhef zoom – for your safety, comfort, and privacy](#) (requires SSO login, being on-site, or eduVPN IA).

Windows installation and instructions

For Windows, as the organizer of a meeting, follow the steps below.

- Go to <https://zoom.us/> to download the Zoom Client.
- Click **Resources** at the top right and choose **Download Zoom Client**.



Handy since some universities do not provide Zoom accounts!

VPN

In order to **access the Nikhef network from the outside** (to access your local computer or the computing cluster, to access paywalled publications, to use software which requires a licence) you need to install the **EduVPN**

EduVPN

eduVPN protects you on unsecure networks, for example, against nearby prying eyes while on the train. The service also offers secure access to protected services when accessing from outside your institution's network.

At Nikhef we offer two 'variants' of eduVPN:

Secure Internet

helps you to surf safely on the general internet. This service is a courtesy of SURF and Nikhef, and allows you to 'escape' from restrictive environments (hotels networks, cafes) that only allow web browsing, **and** at the same time protects your network traffic via encryption.

Institute Access

connect you safely to all internal, local, Nikhef services directly. You can **login to Stoomboot, view internal web pages, and mount your home directory via CIFS** from anywhere in the world. It is like being connected to our local wireless and wired network with your laptop ("DHCPnet"). However: it **only** takes your traffic to Nikhef, and you cannot use Institute Access to access non-Nikhef resources, as the name already suggests.

eduVPN is available for Windows, Linux, MacOS, Android, and iOS devices.

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Getting eduVPN

On your laptop, download the eduVPN client or use your existing OpenVPN or Tunnelblick installation. SURF has provided an excellent [guide and tutorial for installing eduVPN](#).

If you cannot use the special eduVPN client or would prefer your existing OpenVPN installation, you can download personalised "ovpn" configurations directly:

- [Secure Internet](#) terminating in the Netherlands
- [Nikhef Institute Access](#)

Note: you can use Secure Internet and Institute Access simultaneously - if you want both access to Nikhef resources and safely 'escape' a public or hotel wifi - by using the [advanced profiles](#) and the [OpenVPN client directly](#) (look for "Andere platforms") for Safe Internet access, next to the Institute Access via the eduVPN app.

<https://wiki.nikhef.nl/ct/EduVPN>

Stoomboot

Stoomboot is the Nikhef computing cluster, currently composed by around **3000 cores**. It works with a standard batch system and a range of queue options for your jobs

Instructions about how to log in and launch jobs on Stoomboot can be found here:

https://wiki.nikhef.nl/ct/Stoomboot_cluster

We have accumulated a huge amount of expertise in **running efficiently jobs in Stoomboot** (choosing the right submission settings and queues, exploiting the Theory quota), so if you plan to run jobs there please get in touch



centos7 queues	walltime [HH:MM]	remarks
express7	00:10	test jobs (max 2 running jobs per user)
short7	04:00	
generic7	24:00	default queue
long7	48:00	max. walltime of 96:00 via resource list

need dedicated compilers or OS versions? Get in touch!

A dedicated **cluster smefit (theory+ATLAS)** is available:
1152 cores (AMD Rome, with 19.17 HS06/core), 8 GByte RAM and 50 GByte/core SSD.

Stoomboot

Note that you need to be inside the Nikhef network (VPN) to **access Stoomboot**

Accessing Machines through a Gateway

Sometimes a machine you'd like to access cannot be reached directly from the network you are on. The interactive stoomboot nodes, for example, can only be reached from the Nikhef networks. If you'd like to connect to one of them from home or from a university network, you'd first have to log in to the gateway machine - `login.nikhef.nl` in this case - before being able to connect to the remote machine. Doing that by hand in two steps is cumbersome.

SSH allows this to be achieved using a single connection command by setting up a `ProxyJump` in your ssh configuration file. To connect to `stbc-i5` through `login.nikhef.nl` add the following to the configuration section for the stoomboot nodes (create if it doesn't exist):

```
Host stbc*.nikhef.nl stbc*
  User username
  ProxyJump login.nikhef.nl
```

To test this, ensure you're on a network where the nodes cannot be directly contacted, for example by using the "Amsterdam Science Park" wifi network. Executing

```
$> ssh stbc-i5.nikhef.nl
```

Should now allow you to connect. If you are asked for your password multiple times, ensure your `ssh agent` is setup and running.

Disk space

We can store files in two different places:

/data/theorie/: scratch space, no backup, meant for heavy files (e.g. MC events)

```
/data/theorie$ ls
abaronti  ascolocc  dscott      Gijs      ipostmes  lost+found  myeko.tar  pbraat    rabah      smefit     t58         vbertone
abelbk    avanish    eelsfitter  gmagni    jjethier  maaikeb    mzaro      pfredriksz  raquel    sniedenz  tanjona    vsanchez
abos      bapak     enocera     gtx       josepsolac  mathiasr    nlaurent  pherbsch   rbijleve  soniaelh  tgiani     wgautier
arehult   cluster   evagroenendijk  hdamsma  jthoeve   mbeekvel   nmortaza  philipf    rspeijer  svdlippe  thasenac
aschaut   cmarini   ffaura     hla       karl      michaelb   nnpdf-dev  pkrack    rstegeman  svheijst  tsharma
```

/project/theorie/: backup, meant for code development and important file storage

```
/project/theorie$ ls
apapaefs  avanishb  dscott     ffaura    gmagni    jdamste    jorindev  jthoeve   mbeekvel  mzaro      pherbsch   stevenN   t38   t58   t68   vbertone
arehult   avogt     enocera    form      gtx       jjethier   josepsolac  leoverna  michaelb  NumRecipes  rabah      svn       t45   t60   tsharma  wouterw
```

once you leave nikhef, please move your files to the new institution, else sooner or later we will delete them

e.g. someone “forgot” 5 gb of MC event files that saturated our quota ;)

```
/project/theorie$ df /project/theorie
Bestandssysteem      1K-blokken  Gebruikt  Beschikbaar  Geb%  Aangekoppeld op
project-nfs-1.nikhef.nl:/theorie  747110400  592766080  154344320  80%  /project/theorie
/project/theorie$ df /data/theorie
Bestandssysteem      1K-blokken  Gebruikt  Beschikbaar  Geb%  Aangekoppeld op
data-02:/theorie  21474836480  20106732224  1368104256  94%  /data/theorie
```

we can request more quota if needed, but deleting from time to time unused files is good practice

Nikhef CGO (Computer User's Meeting)

Regular meetings between **Program representatives** and the **IT & PDP colleagues**

Raise problems, request equipment and software, upgrade available tools

Get in touch with me if you would like to raise any point in the Nikhef CGO

Nikhef Computing Courses

Most are offered yearly, open to everyone at Nikhef, including BSc/MSc/visitors. Several variants:

- a research data management and repository/PID/ORCID/arXiv and research integrity, 30-11-2023
<https://indico.nikhef.nl/event/4761/>
- C++ course [just happened]
- a basic software (shell, Python, notebooks) course, co-organised with the local Digital Competence Centre (LDCC)
- a computing/stoomboot course, specifically focussing on local infrastructure

Theory social media accounts

We have plans to increase our (social) media presence

1. Every Tuesday, we will **'introduce a group member'**

For this we need a short description of who you are & what you are working on, plus a (few) picture(s).

You will get an email during the week before.

Also include your X/Instagram account so that we can tag you.

2. If you have published a **new paper** - send me a few lines about the paper, the link and the money plot/formula

3. We must make an effort to keep the **theory webpage** up to date. If you have a new student / somebody is leaving - please let me know!

We
1.

2.
an
3.
ne

```
1 // Runs the 1->3 shower
eG2z-allrseq OneToThreeShower.hh 2 $ build_types.sh $ do
Users > melissa > social_media_nikhef > create_group_list.py > ...
43
44 "Martijn van Hamersveld",
45 "J. Bryant Hall",
46 "Dimitrios Daskalas",
47 "Gijs van Seeventer",
48 "Carlotta Casi",
49 "Nora Locht",
50 "Epameinondas Chasapis",
51 "Tim Kortekaas"]
52
53 print(len(master)+len(phd)+len(group_members)+len(postdoc))
54 import random
55 import numpy as np
56
57 random.shuffle(master)
58 random.shuffle(phd)
59 random.shuffle(postdoc)
60
61 # print(len(master)+len(phd)+len(postdoc))
62 weeks2023 = np.arange(46, 51, 1)
63 weeks2024 = np.arange(2, 52, 1)
64 i_master = 0
65 i_phd = 0
66 i_postdoc = 0
67 i_staf = 0
68 keep_iters = [i_master, i_phd, i_postdoc, i_staf]
69 people = [master, phd, postdoc, group_members]
70 for week2023 in weeks2023:
71     pick = int(random.uniform(0, 3))
72     print(week2023, people[pick][keep_iters[pick]])
73     keep_iters[pick] += 1
74
75 for week2024 in weeks2024:
76     pick = int(random.uniform(0, 4))
77     while(keep_iters[pick] > len(people[pick])-1):
78         pick = int(random.uniform(0, 4))
79     print(week2024, people[pick][keep_iters[pick]])
80     keep_iters[pick] += 1
81     if((keep_iters[0] == len(people[0])) and (keep_iters[1] == len
82         break
83
84
85
```

```
melissa — vanbeekveld@
46 Heleen Mulder
47 Tim Kortekaas
48 Ankita Budhraj
49 Anders Rehult
50 Guanghui Zhou
2 Robert Fleischer
3 Giacomo Magni
4 Tanjona Rabemananjara
5 Jelle Groot
6 Mila Keijer
7 Nora Locht
8 Max Jaarsma
9 Juraj Klaric
10 Gideon Koekoek
11 Valentina Schultze Sanchez
12 Eric Laenen
13 Carolina da Silva Bolognani
14 Marieke Postma
15 Epameinondas Chasapis
16 Juan Rojo
17 Tommaso Saracco
18 Wouter Waalewijn
19 Tommaso Giani
20 Vaisakh Plakkot
21 Coenraad Marinissen
22 Jaime del Palacio Lirola
23 Jaco ter Hoeve
24 Keri Vos
25 Robin van Bijleveld
26 Jordy de Vries
27 Johannes Michel
28 Maximilian Attems
29 Toon Hasenack
30 Pieter Braat
31 Susanne Westhoff
32 Anh Vu Phan
33 Rens Verkade
34 Gijs van Seeventer
35 Beatrice Bonga
36 Wilke van der Schee
37 J. Bryant Hall
38 Melissa van Beekveld
39 Dimitrios Daskalas
40 Martijn van Hamersveld
41 Carlotta Casi
42 Eva Groenedijk
bash-3.2$
```

on,

link

1

FAQ

- 🔊 My Desktop/laptop/tablet has broken down! *If it is Nikhef property, the IT Helpdesk can provide a replacement one while they fix your device*
- 🔊 I ran out of disk space in my account! *Ask the Helpdesk to increase your quota. Note that there is a very large amount of scratch space (non-backup) available*
- 🔊 My jobs in Stoomboot keep crashing! *Ask local theorists with experience with the cluster*
- 🔊 I would like to suggest structural changes to Nikhef IT services, or propose new services or activities! *Get in touch with me!*
- 🔊 I would like to purchase a new laptop/tables/desktop, what can I do? *The Helpdesk can do this for you, but first discuss with your supervisor*
- 🔊 Can I order computing equipment (keyboards, mouse, screens, hard disks) via the Helpdesk? *Yes, so no upfront charges from our side! But please check with your supervisor first.*

Until recently, Theory has been using Nikhef computing resources much less than other programs, so **our quotas are not too high**. The more users we have, the better we can argue for increase in quotas. So please get in touch if you feel **your research deserves more IT resources!**