

DESY Summer Student Program 2022



Orga-Team: Olaf Behnke, Friederike Januschek, Andreas Przystawik,
Ute Micheelsen, Andrea Schrader

The 76 Summer students at DESY Hamburg come from
35 Nations

- Afghanistan, Austria, Brazil, Bulgaria, Colombia, Cuba,
- Denmark, Ecuador, Egypt, France, Germany, Greece,
- India, Iran, Italy, Jordania, Kosovo, Lithuania, Malaysia,
- Norway, Pakistan, Palestine, Phillipines, Poland, Romania,
- Russia, Slovakia, South-Africa, Spain, Switzerland, Taiwan,
- Thailand, Turkey, United Kingom, Ukraine

NICE TO
MEET YOU!

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- Russia, Slovakia, South-Africa, Spain, Switzerland, Taiwan,
- Thailand, Turkey, United Kingdom, Ukraine

We welcome 58 Summer Students on-site and 18 Remote

DESY Site at Hamburg

We are HERE now



Photon Science Lectures Flash Seminar Room 28c

U. Micheelsen 25f/153

The DESY Site :

A. Przystawik 25f/357

A. Schrader 1e/01.513

F. Januschek 1e/01.515

O. Behnke 1a/01.132

Canteen extension

Canteen & Cafeteria

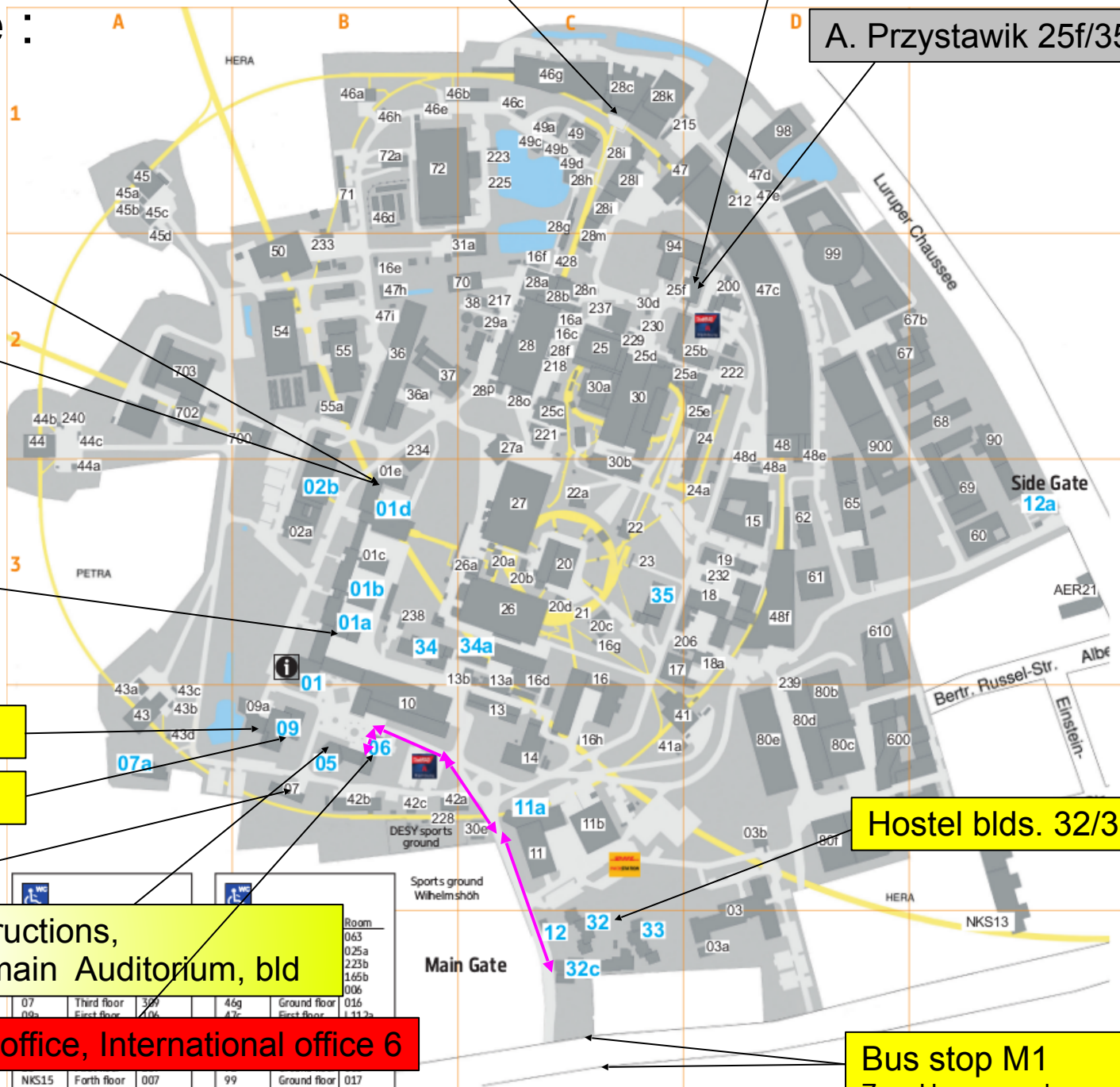
Administration 7

Welcome session, safety instructions,
Common and HEP lectures, main Auditorium, bld

Guest office, International office 6

Hostel blds. 32/33

Bus stop M1
Zum Huenengrab
(DESY)



Organisers (core team)

- **Olaf Behnke, Friederike Januschek, Andrea Schrader** ← **HEP (B)**
- **Andreas Przystawik, Ute Micheelsen** ← **Photon Science (A)**

For all communications with us, please write to
summie-org@desy.de

Information on handling of COVID-19 for DESY summer students 2022

July 17, 2022, O. Behnke

- Information on DESY's handling of COVID-19 can be found at the webpage https://www.desy.de/coronavirus/index_eng.html
- The current valid guidelines are provided at https://www.desy.de/sites2009/site_www-desy/content/e301782/e301873/e315086/220712_DESYGuidelinesCorona_eng.pdf
Please have a look, among other things DESY strongly recommends
 - to **wear FFP2 masks in closed rooms** (such as the DESY auditorium, offices, etc.)
 - and to keep distances, e.g. in the main auditorium please use only every 3rd seat
- Please be aware that when you travel in Hamburg with the public transport (HVV): wearing of masks is obligatory.
- Your **group at DESY is responsible for supplying you with masks and rapid covid-19 antigen tests**, once you start your work project
- It is recommended that you **frequently test yourself**, in particular also if you feel only mild symptoms of a possible infection. If the test result is positive then please stay in your Hostel room and contact the DESY health service by writing an email to health.service@desy.de They will discuss with you further measures. Please also write an email to hostel@desy.de and to your supervisor(s) and inform them about the positive test. Please take note that PCR-test is not automatically needed and after five days and without symptoms another self test should be done. The health service will advise you on the exact steps.

Your Research Projects at DESY

- **Program A:**

- Experiments with Synchrotron Radiation (**Photon science**)

- engage in fundamental and applied research in physics, biology, chemistry, crystallography, material and geological science.
 - Some few students will work in the European XFEL project.

- **Program B:**

- Research in Elementary Particle Physics (**High energy Physics**)

- Experiments ATLAS, CMS, preparations of future experiments (FTX group), Belle II, ALPS II and LUXE at DESY
 - Accelerator: DESY accelerators, Plasma wake field
 - Theory: Collider phenomenology (QCD, Higgs, etc.), String, Gravity
 - Scientific computing: Web technologies

Your Research Projects at DESY

- **Program A:**

Experiments with Synchrotron Radiation (Photon science)

Work project technical support:

All support is provided locally by the project supervisors and their respective DESY groups, system administrators, etc.

You will be integrated in the DESY groups like normal researchers, for work related questions ask your supervisors or group secretaries!

- Theory: Collider phenomenology (QCD, Higgs, etc.), String, Gravity
- Scientific computing: Web technologies

Your Research Projects at DESY

- **Program**

- **Experiment**

- engaging
 - chemical
 - Some

What we expect from you:

On-site students

Remote students:

Work duration:
(including lecture time)

39 h per week

max. 39 h per week

- **Program**

- **Research**

- Experiment
 - Belle II
 - Accelerator
 - Theory
 - Science

Final work

Report:

o(10) pages

at least few pages

All students should have the chance to present their project work and results at least at once to their DESY group (e.g. towards the end of the project)

General recommendation for project work:

→ don't be shy, be pro-active and don't hesitate to ask your supervisors questions and give feedback!

X group),

y

Computing infrastructure at DESY

- DESY has its own **computing centre** in bld. 2B (worth a visit)
- At the hostel use following **WLANS**:
 - DESY Guest Net (a bit slow, easy registration with web interface)
 - **Eduroam (you have to register)**
- **Software:** For Mathematica, Matlab and Origin DESY has only a limited number of licenses:
 - Discuss any needs with your supervisor
 - Run only one process at a time and **finally close the program**

Lecture programme

<https://indico.desy.de/event/35182/timetable/#20220719.detailed>

- By DESY researchers
- Provide background on DESY research

Lecture types:

- **Common**

all lectures not marked in the agenda with
HEP Lectures: or PS Lectures :

- **HEP** (for B summies)
- **PS** (for A summies)

*We recommend
you to attend the
common lectures
and **either the
HEP or the PS
lectures** but not
both of them*

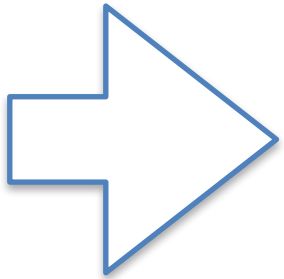
Summer Students Lectures 2022 from Tuesday, July 19, 2022 (9:00 AM) to Friday, August 26, 2022 (5:00 PM)				
Monday, July 18, 2022	Tuesday, July 19, 2022	Wednesday, July 20, 2022	Thursday, July 21, 2022	Friday, July 22, 2022
	10:00 AM Welcome Session	9:30 AM Introduction 1	9:30 AM Introductions 2	9:30 AM Introductions 3
	2:10 PM Library Introduction			
	2:30 PM Safety Instructions			
Monday, July 25, 2022	Tuesday, July 26, 2022	Wednesday, July 27, 2022	Thursday, July 28, 2022	Friday, July 29, 2022
9:15 AM Fundamentals of X-Ray Matter Interaction 1	9:15 AM Fundamentals of X-Ray Matter Interaction 3	10:00 AM X-ray Spectroscopy of Quantum Materials	10:30 AM Dark Matter / Axionen / ALPS	
10:15 AM Break	10:15 AM Break			
10:30 AM Accelerator Physics 1	10:30 AM Director's Welcome			
	10:45 AM Accelerator Physics 2			
2:00 PM Fundamentals of X-Ray Matter Interaction 2				
Monday, August 1, 2022	Tuesday, August 2, 2022	Wednesday, August 3, 2022	Thursday, August 4, 2022	Friday, August 5, 2022
10:00 AM Atoms in intense light fields	10:00 AM Polyatomic systems at high x-ray intensity	10:00 AM Lasers and Ultrastat Optics 1	10:00 AM X-Ray Physics and Nanoscience	10:00 AM Lasers and Ultrastat Optics 2
10:30 AM HEP Theory 1	10:30 AM HEP Theory 2			
Monday, August 8, 2022	Tuesday, August 9, 2022	Wednesday, August 10, 2022	Thursday, August 11, 2022	Friday, August 12, 2022
	9:30 AM Detectors 1	9:30 AM Detectors 2		10:00 AM Photon-based characterization of functional and biomaterials
	10:00 AM X-Ray Nano-Analytics and Microscopy: Part 1	10:00 AM X-Ray Nano-Analytics and Microscopy: Part 2		

+ more lectures in 2nd half of August

Communication

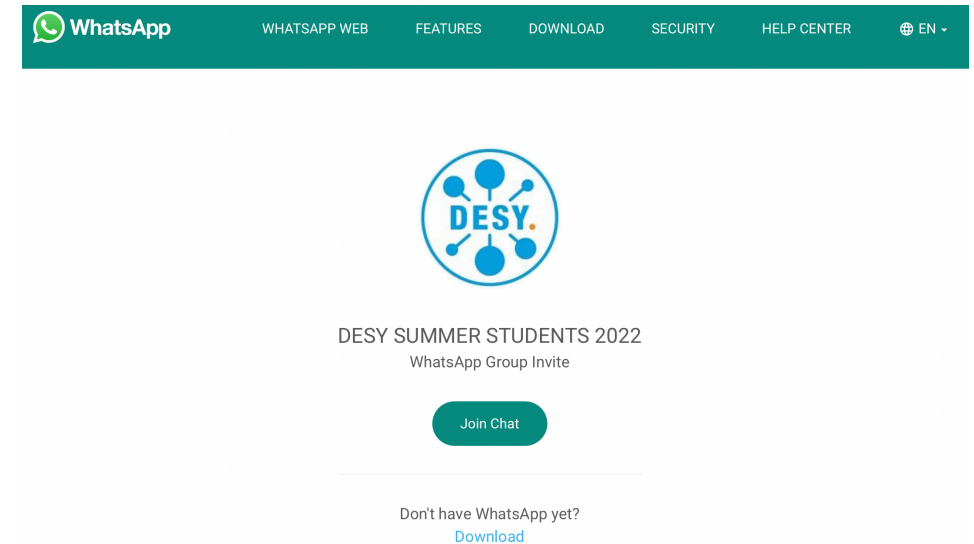
Between summies using social media: → organise yourself

In 2021 the summies used: DISCORD and WHATSAPP GROUPS.. in 2022 we have so far



<https://chat.whatsapp.com/Ic7JM0K7EGl5Wu0WtwTkWp>

Thanks to Carolina and two other summies
for creating this group



We will keep communicating with you on program related matters via email:

→ please write to summie-org@desy.de

→ we will write to your email addresses (or to your DESY email address, let us know if you prefer that)

INFORMATION on WEB :

Main page

<https://summerstudents.desy.de/hamburg/>

Message board:

https://www.desy.de/f/students/summer_home_2022.html

Special events and
announcements

- Tuesday 19 July, 10:00-11:00, DESY auditorium building 5:
Welcome Session: Welcome talk and personal Check-In with the DESY summerstudent team, please bring all the necessary documents mentioned in [Administrative procedures](#) with you. The webpage for the welcome session is [here](#).
- **Travel reimbursement:** Please hand in the reimbursement sheet at the DESY travel department: C. Tornau, and K. Koch, bld 7/401, Opening hours: tuesday - thursday, mornings and afternoons
- Thursday 21 July at 11:15, stairs at entrance to foyer of DESY auditorium:
A photo of the summer students will be taken after the first lecture.
- Friday 22 July, 18:00 - 22:00, DESY Canteen Extension bld. 9:
Welcome Dinner with buffet and drinks
- Monday 25 July 14:00 - 16:00 and Tuesday 26 July 14:00 - 16:00:
Guided tour around the DESY site; meeting point: Foyer DESY auditorium
We will split, up to 30 students can participate on each day:
 - Monday: **Tours are mainly reserved for students working on B1-B6 projects. Please register [here](#).**
 - Tuesday: **Tours are mainly reserved for students working on A1-A6 projects. Please register [here](#).**Please register for your tour by friday 22 july.
- Thursday 11 August:
Guided tour around the XFEL site in Schenefeld (experimental halls): The tour will start in the morning and end in the afternoon, details TBA.
- Friday 26 August, the **DESY Zeuthen Summies will visit DESY Hamburg, lets see if we can organize some social event**, details TBA.
- Thursday 8 Sep 9:30 - 16:00, SR4:
Final Students session with ~20 representative brief presentations by summies on their work projects, and a course review, details TBA.

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Please take note of limited opening times.

- Please hand in your sheet together with all receipts
- You can hand in the sheet at the Reisestelle in bld. 7, fourth floor, office 401, or send per "Hauspost"
- If you have any questions please write an email to christina.tornau@desy.de

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© Can Stock Photo - csp2566562

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Last day of programme

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Life on the DESY campus

Practical information on the DESY campus:

→ DESY booklet

https://welcome-services.desy.de/sites2009/site_guest-services/content/e56138/WelcomeBooklet2021_eng.pdf

Printed version in your welcome bag :-)

Life in the DESY Hostel – few hints

- Missing equipment (kitchen, cleaning, etc.) or other requests/complaints → don't hesitate to email hostel.service@desy.de (or visit them in their office 06/118)
- DESY salary payment end of August and in September: hostel accommodation costs are deduced so total amount of paid out money may appear to be not so high





Verbindung Abfahrten

Your start

Your destination

Search



Single, Day, Weekly Tickets and 9 Euro Ticket

Buy your ticket online and off you go

Buy your ticket here and print it out or call it up on your smartphone – your meinhvv account makes it possible.

You get 7 % off when you buy single, day and supplementary tickets this way (weekly tickets and the Hamburg CARD are excluded) and an extra bonus is that you can buy tickets up to 14 days in advance.

A ticket which is bought at the Online Shop is only valid for the person named on it on the chosen day of travel and in combination with a valid photo ID. **No refund is possible.**

[FAQ on print-it-yourself tickets](#)

Special monthly season ticket 9 Euro Ticket	Single Tickets <small>Save 7 %</small> Single Ticket Single Ticket Citycard Single Ticket Child	Day Tickets <small>Save 7 %</small> All Day Ticket All Day Ticket Child 9am Day Ticket 9am Group Ticket
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With the 9 Euro personalized monthly ticket you can go around with all public transport in Hamburg (and in Germany, with regional transport)

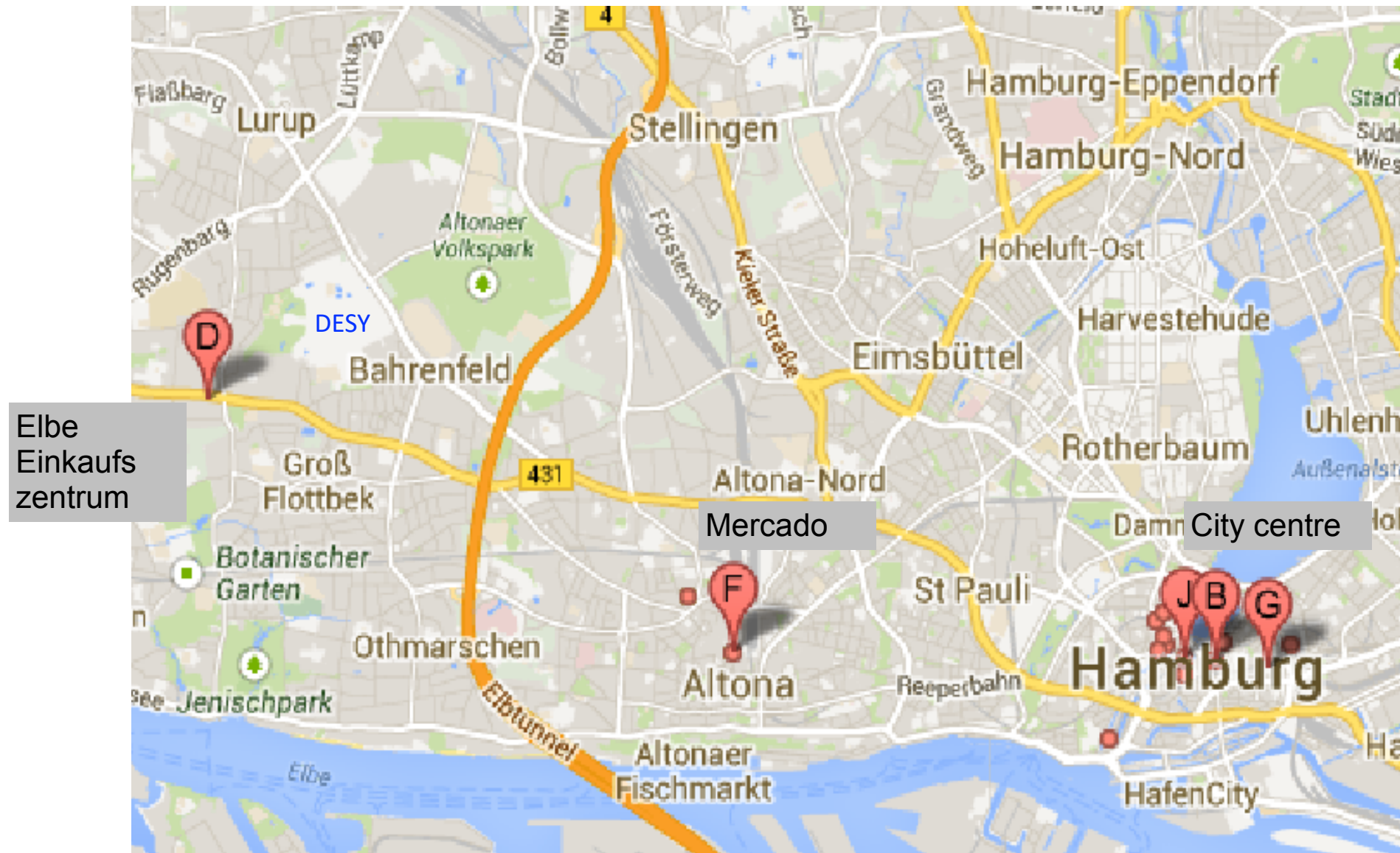
Some (cheap!) supermarkets nearby



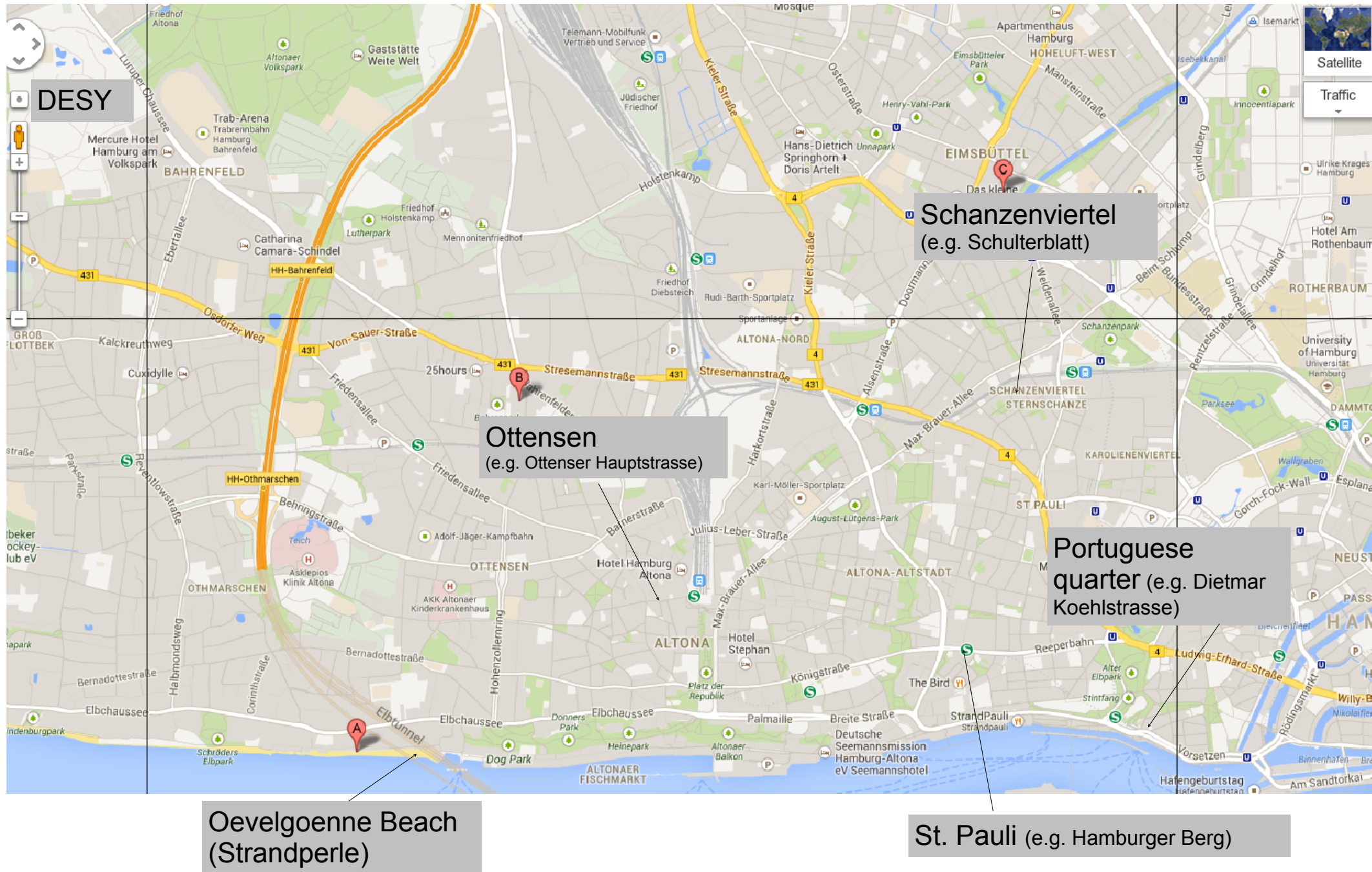
Weekly market: we + sa 08-13 → fresh products (more expensive)

[illegible]

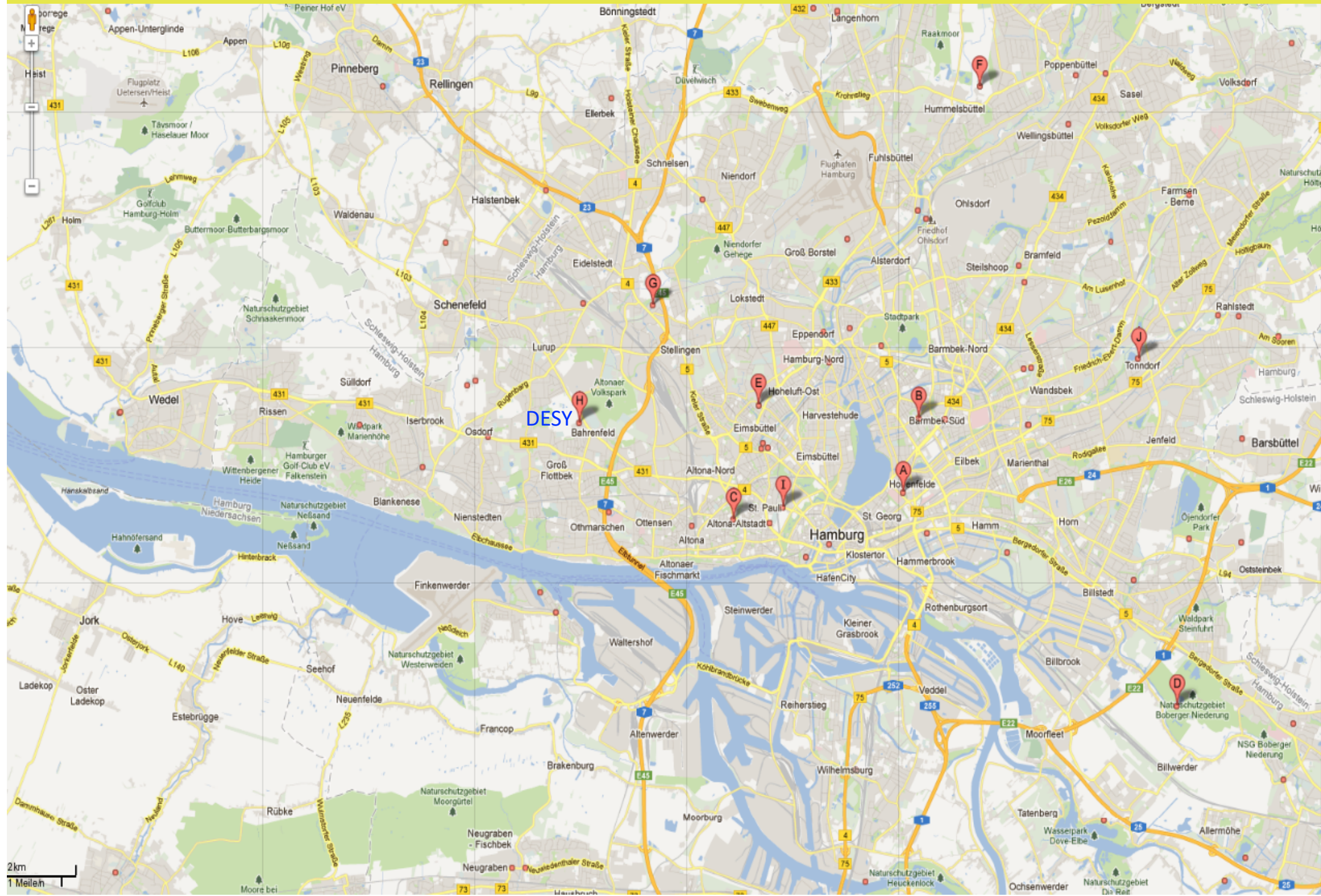
Shopping centers (selection)

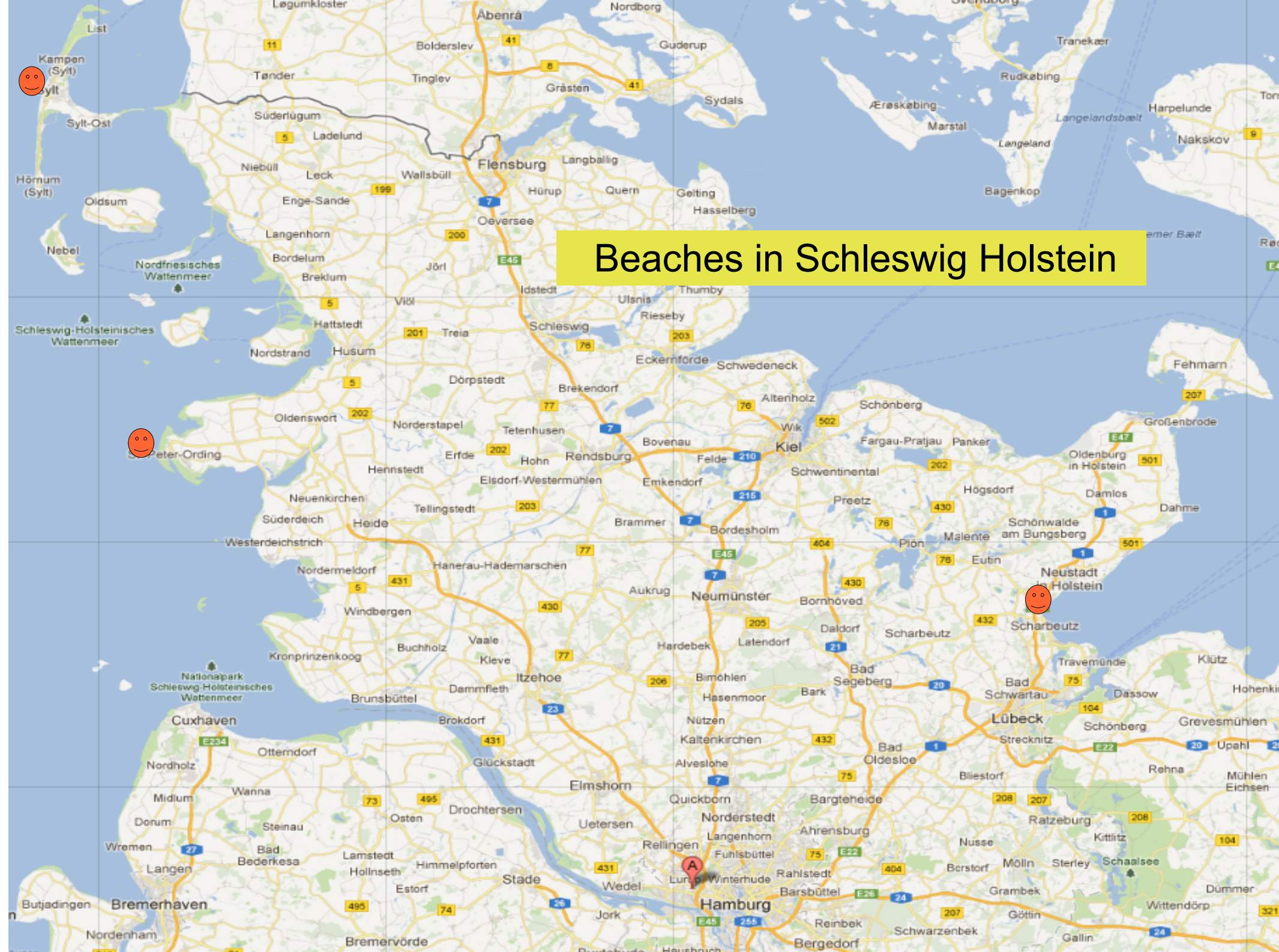


Cool places, Dinner, Nightlife

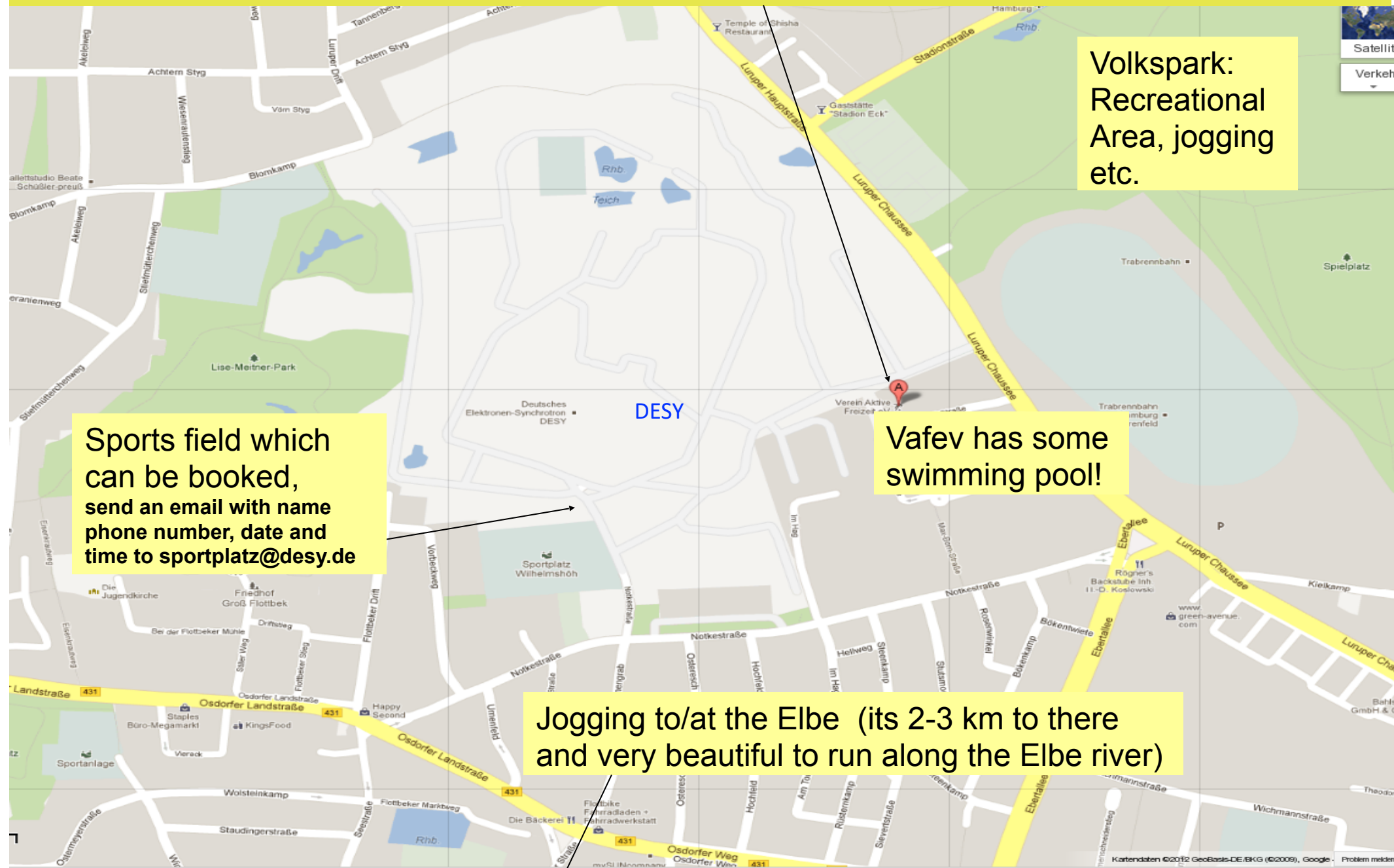


Sports: swimming pools in Hamburg: google 'Hamburg Schwimmbad'





One out of many possibilities for fitness: vafev.de



This & That

- Bikes: at DESY there is a Stadtrad station <http://stadtrad.hamburg.de>
- Discover Hamburg with a boat – take ferry line 62, you can use standard public transport tickets



- Drinking water: in Germany you can drink the water from the tap, it has highest purity, better than mineral water, no need to boil it

We have to talk about ...



- The picture file is named “Typical_Hamburg_weather.jpg”
- Weather can change quickly here, please check weather forecasts, e.g. search for “wetteronline.de Hamburg”

Typical Hamburg Dishes



Labskaus



Rote Gruetze mit
Vanillesauce

Next steps today

Registration in Foyer or **outside**:

- General check-in (if you have not yet done it) and get your welcome bag (**all**)
- Personnel Department (**all**)
- International office (**all non-german citizen**)
- Travel Reimbursement
 - For questions write to christina.tornau@desy.de
 - During next days/weeks: hand in filled form + receipts (at bld. 7/401)

Tip: visit first the person with the shortest queue of waiting students

- ~10h45 Meet your Supervisor in the foyer or outside, chat, visit workplace
- 14h00 Library introduction (here in auditorium)
- 14h30 Safety instructions for all B1-B6 students (here)
 - Sign attendance sheet during session

Backup slides

DESY PARTICLE PHYSICS in 2022

ATLAS group:

- Physics analysis: H, top, SM & BSM
- Detector operation
- Tracker upgrade



CMS group:

- Physics analysis: H, top, SM & BSM
- Detector operation
- Tracker upgrade

Theory:

- Collider phenomenology
- Cosmology
- String theory

IT:

- high tech computing infrastructure

FTX group

- Prepare future experiments
- e+e- collider program
- Science, software, detector, test beam and accelerators

BELLE:

- Physics analysis
- Software, Alignment
- Vertex detector



ALPS:

- Search for axions with light shining through wall experiment

