



Universität Hamburg
DER FORSCHUNG | DER LEHRE | DER BILDUNG

General safety training

Institut für Experimentalphysik
Universität Hamburg

Training content

Required

- **General safety**
Emergency cases, fire safety, hazardous substances, etc.
- **Sexual harassment/discrimination**

Optional

- **Work in laboratories/hazardous substances**
- **Radiation safety**
- **Laser radiation safety**

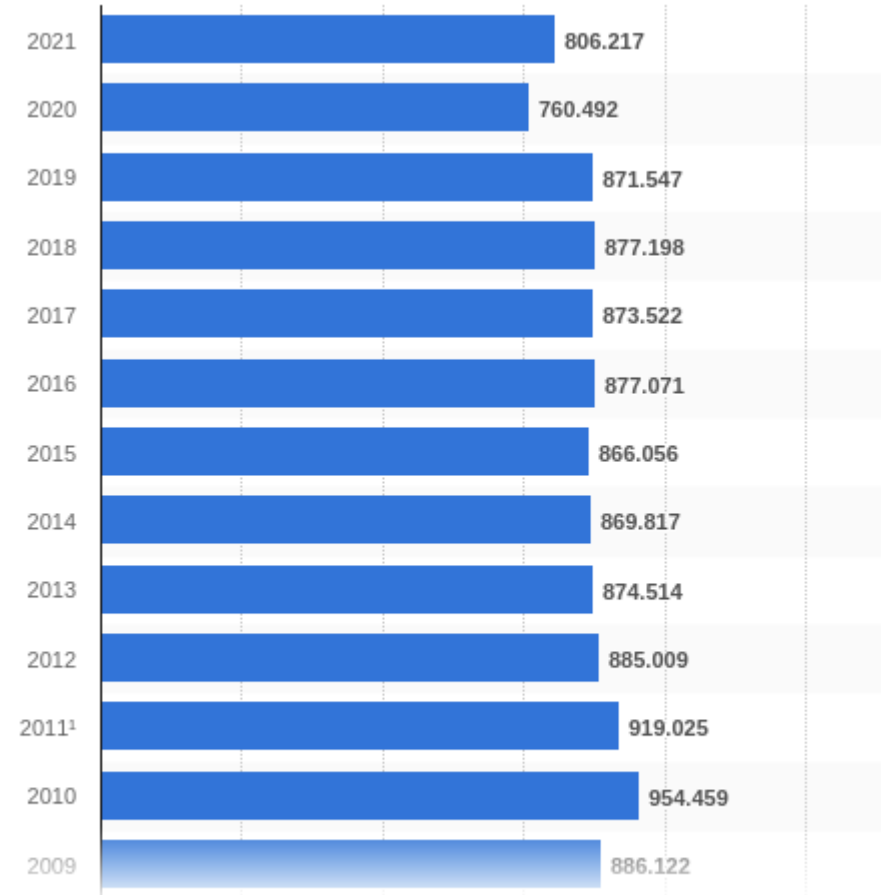
Work accidents in Germany

Number work accidents reported in Germany from 2009 to 2022
(de.statista.com, 11.11.2022)

Most of the accidents do not happen due to technical failures or organisational deficits but due to “human failures“

→ ignorance of safety rules

→ Every person actively contributes by her/his action!



Goals of the training

- **Fulfill legal requirements:** Employers have to conduct safety trainings and supply information about potential dangers at work (to maintain insurance cover/UK Nord)
- **Safe behaviour at work:**
 - Avoiding of accidents
 - Protection of health

General and work place related instructions

- both instructions have to be **before** starting to work and have to be documented!
- The documentation is carried out in the individual groups (important: name, date, kind of training → certificates)
- With this procedure responsibility is also transferred to each individual person!

Occupational safety: organisation

Responsible for occupational safety: work group leader

Supporting function: safety delegates of the groups

Additional delegates for special topics, e.g. radiation protection, laser safety

Specialists from the [Occupational Safety and Environmental Protection Unit](#)

Sources for information

website of the institute:

safety code/fire protection/links (e.g. Occupational Safety and Environmental Protection Unit)

Occupational health and safety management system for the university (**AGUM**) - German only :-)

<https://uni-hamburg.agu-hochschulen.de/startseite>

Occupational safety

Risk assessments

- for all (dangerous) work, every working place
- in written form, annual updates
- including operation instructions
- basis for work place related training (original kept locally!)

Operation instructions

- provide rules for handling work equipment
- information about special risks, e.g. for machines/general things (in blue) or chemicals (in orange)

→ these documents should be read and understood!

→ questions need to be discussed before starting to work (supervisor, safety delegates)

COVID-19/infection control and protection

- current regulations are written down in the hygiene plan of the university
<https://www.uni-hamburg.de/en/newsroom/intern/2020/0131-corona-faq/en-hygieneplan-uhh-aenderungen-kenntlich.pdf>
- all restrictions have been cut
- still, the usage of FFP2 masks inside buildings is recommended
- „work-at-home“ and electronical communication possible if agreed on with supervisor.



Emergency cases - Fire safety

In an emergency case/rescue plan

At the campus Bahrenfeld:

Call SAVE/DESY: 2500 / mobiles or from outside: 040-8998-2500

→ Do NOT call external fire men/ambulance/police!

Where...	did the accident/incident happen?
What...	happened exactly? Short description of the situation!
How many...	injured/involved people?
What...	kind of injuries?
WAIT!	In case of any questions!

At your working place - are you aware of ...

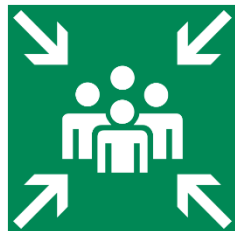
Escape ways



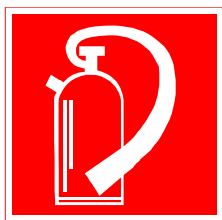
Locations of first-aid equipment



Common meeting points



Locations of fire extinguishers



Emergency numbers



First-aiders?



You need be able to orient yourself also in the case of smoke and reduced sight!

Common meeting points

In case of an alarm you **immediately** have to leave the building and go to the **meeting points!**

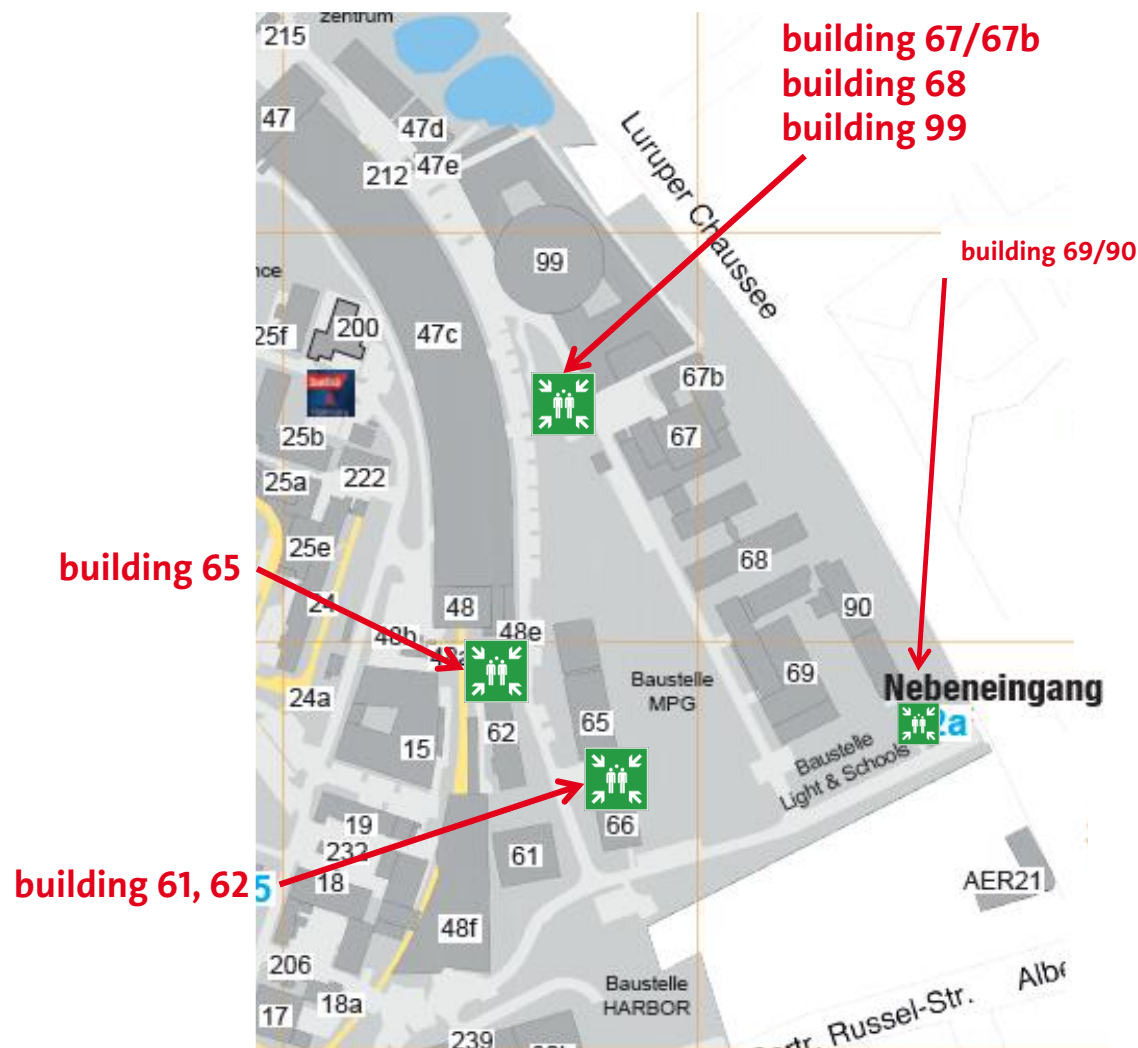
This also applies in case of a **power failure**



Evacuation assistants report building cleared



Check if all colleagues are there and inform rescue people if necessary



In case of a fire

- Ignite an alarm by calling **2500** or break the glass of a fire alarm box with your elbow and press the button
- Stay calm, close windows and doors
- If possible, switch of machines/experiments
- Leave the dangerous area **immediately** and use the marked escape routes!
- Do **NOT** use the elevator
- Help injured or disabled person leaving the building



Using a mobile
+49 40 8998 2500



→ proceed to **meeting point**

In case of a fire

- **Only** try to extinguish a fire if this is possible **without** bringing yourself into danger! Do not enter areas under smoke!
- If using CO₂-extinguishers: Leave the room immediately afterwards!

If you are not able to leave the building:

- Go to a room with windows
- Move close to the floor if smoky areas have to be crossed
- Keep doors closed
- Try to give signals from the window that people get aware of you
- Training to become a fire protection delegate are offered regularly by the university!



Fire safety/fire prevention



⇒ If needed talk to your local safety delegate or have a look into the Fire Safety Regulations

- No smoking and open fire allowed in any building
- Corridors/stairways are escape routes in case of an emergency



KEEP CLEAR of cartons & packaging/tables, chairs, etc.
NEVER block fire protection doors!
NEVER block safety equipment (fire extinguisher etc.)

→ evacuation assistants/building responsables

- Emergency exits must not be locked and always kept clear!
- Electrical devices for preparation of hot water:
 - To be used only in appropriate rooms (kitchens)
 - VdE testing (electrical safety) necessary!
 - Usage of fire resistant support mandatory!

*First-aider course on
campus in English next year:
25.09.2024*

In case of an accident

- Rescue injured persons from the hazard area and place them in recovery position (if unconscious)
- Take care of life-threatening injuries/ involve second person
- **Call 2500** Where?
 How many injured?
 Kind of injury *
- Continue supply of injured person
- Briefing for SAVE if possible
- SAVE takes over first-aid and guides external rescue forces
- Minor injuries: First Aid Kits
Verbandsbuchauszug (first-aid book):
only digital from now on#
(Proof for accident at work)
Spare parts for First Aid Kits: Mr. Illing/Weppner
2207/2965
- Information concerning first-aid (only German):
#<https://uni-hamburg.agu-hochschulen.de/index.php?id=453>

* Try to decide if ambulance is needed

Mandatory if:

1. Person unconscious
2. Life-threatening injuries
3. Electrical accident

Accidents:

- Accident at or on the way to work: If a medical treatment is required, a visit at a so called **“Durchgangsarzt“** (transit doctor; approved by health insurance) or a hospital is mandatory.

MVZ Elbe West

Rugenbarg 20
22549 Hamburg
040/866215580

Dr. H.V. Grüber
Arzt für Unfallchirurgie
Jürgen-Töpfer-Straße 46
22763 HH
040/892392

AK Altona
u.a. Augenklinik (ophthalmic clinic)
Paul-Ehrlich-Str. 1
22763 Hamburg
040/18 18-81 0

Names and addresses of other **„Durchgangsarzte“**:
Appendix 2 of the job safety code
or at <http://lviweb.dguv.de>

- Report any accident - in particular if medical assistance is needed – immediately to your supervisor/boss (report may be needed for insurance (UK Nord)) and your administration.
- Forms: <https://uni-hamburg.agu-hochschulen.de/notfallorganisation/betriebliche-unfallmeldung>



General safety rules

Work equipment

General safety rules: office work

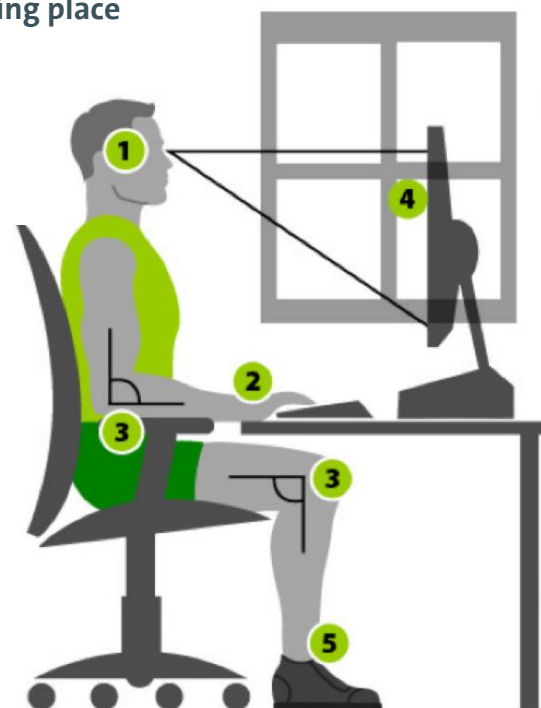
- take care of an ergonomical position:
 - frequent changes between sitting and standing
 - implement “movement” breaks, ~5min/h
 - working at computers:
 - avoid reflexions from lights/windows
 - line of sight in parallel to windows
- do NOT use swivel chairs as steps
- set up printers and copy machines in separate rooms
- regular ventilation of offices
- the university offers a set of occupational health examinations
- in the event of pregnancy/breastfeeding, this should be reported to the HR department
 - employer can take the necessary measures in accordance with the Maternity Protection Act (§10 MuSchG)

Ergonomics at the working place

1 The first row at the monitor should be slightly below your horizontal sight axis.

2 Keyboard and mouse are on the same level as elbows and hands.

3 90° angle between upper arm and forearm as well as thigh and lower leg.



4 The monitor should have a minimum distance of 50cm and should be placed in a 90° angle with respect to the window.

5 Feet need a solid support.

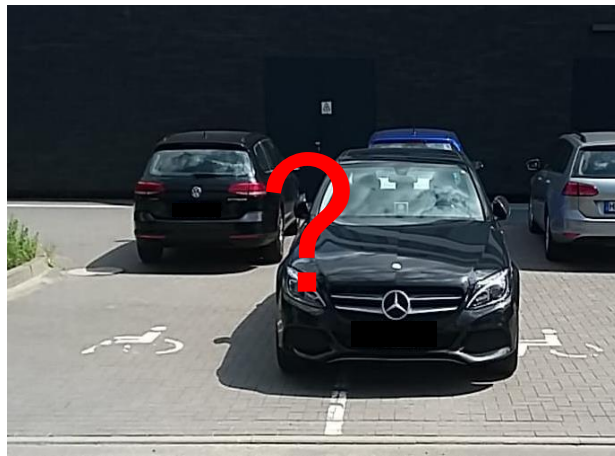
“Ergonomie am Arbeitsplatz”
von Marcel Kollmar & Partynia, Wikimedia Commons,
lizziert unter [CC BY-SA 3.0 DE](https://creativecommons.org/licenses/by-sa/3.0/de/).
URL: https://commons.wikimedia.org/wiki/File:Ergonomie_Bildschirm.png, abgerufen: 01.12.2020

General safety rules: behavior on the campus



- maximum speed is 30 km/h – independent on used vehicle
- Always adapt to weather conditions!

Feuerwehruzufahrt



Parking **only** in designated areas!
Always keep clear emergency access roads and escape routes!



General safety rules



Warning:
dangerous
Voltage



(Any similarity to actual events or persons/cars, living or dead, is purely coincidental.)

- Respect danger and warning signs as well as access restrictions!
→ Crosscheck with responsible person if work has to be carried out in area with **access restrictions!**
- Respect restrictions (**blockades**) even if this leads to detours!
- Never carry out dangerous experimental or technical work alone!
- Always work calm and thoughtfully
→ Keep working space clean and tidy

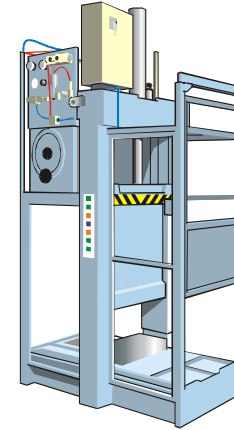
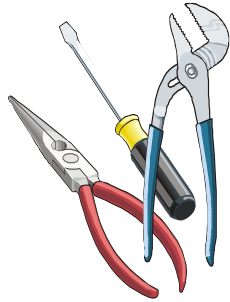
General safety rules



→ working space clean and tidy?

Work equipment

Work equipment: tools, devices, machines or machinery



→ Follow **manuals & warning notices**,
also **operation instructions**

→ Keep an eye on regular checks required, e.g. for ladders, forklifts



Rules for safe operation:

- No alcohol/smoking at work
- Every user has to be instructed **BEFORE** using any device/machine
- Visual inspection **BEFORE** usage!
- **NEVER** operate devices with open housings,
do **NOT** bypass, shortcut or even remove safety mechanisms
- Use your Personal Protective Equipment
(to be supplied by employer):
 - safety boots, gloves
 - safety glasses
 - ear protection



25% of the accidents
at work happen due to
manipulated safety
mechanisms!

Electrical devices

- **Visual inspection regularly! Do NOT use damaged devices!**
Clearly label them and arrange for repair or disposal.
 - movable electrical devices regularly have to inspected by trained personnel,
inspecting periods may vary (i.e. offices every 2nd year)
- **Use extensions safely:**
Avoid risk of stumbling by use of cable ducts
- **Multiplugs MUST not ...**
 - ... be used as extensions!
 - ... be stacked one after the other!



Disposal

- The institute provides suited disposal containers for almost all material, devices and no longer used equipment that need to be disposed!
- Questions how-to?
 - Safety delegates, waste and disposal staff!
- Responsibility of each person :
 - Use disposal containers correctly!
- Electronic waste: Zyklotronhalle
batteries/Li-batteries: Oliver Becker (62/315)
- Metal scrap: mechanical Werkstatt



Not like this!





CFEL – some peculiarities

- **CFEL is equipped with a sprinkler system that is activated by light barriers. Therefore never start any**
 - balloons, paper planes or other flying devices in the foyer
- **In case of an alarm use the marked escape ways but NOT the open staircases.**
- **Main entrance in&out: revolving door**
 - Over night (19-8 o'clock) revolving door is deactivated, use door left from revolving door with transponder
- **Don't wear any lab clothing (coats, gloves) in the central area and !**
- **Smoking not allowed as usual, also not in the inner courtyards!**
- **First-Aid room on first floor: O1.119**

Ionizing radiation

Sources of stray radiation,
x-ray sources



Radioactive elements,
activated parts



In general: NO ADMITTANCE!



Ionizing radiation

Prohibited and controlled



Interlockdoors and -installations



Radiation safety lecture!!!



Working in DESY premises having radiation safety areas requires a radiation safety lecture by DESY!

Ionising radiation

Shieldings/ protective barriers:

- **Never remove!**
- **Any change is only allowed after consultation and approval of the responsible radiation safety officer!**



Questions? Comments?

Safety delegates of working groups & supervisors

Special safety delegates for particular duties :

Radiation safety delegate (Martin Tluczykont)

Laser safety delegate (Mark Prandolini)

Hazardous substances delegate (NN)

Fire protection (NN)

Organisation of job safety (Marek Wieland)

Proof for general safety training for
DESY/Dachs-card required?
Send email after succesful
training to
sicherheit_iexp@desy.de

Or: **sicherheit_iexp@desy.de**



Special risks in the laboratory

Hazardous substances

- Even work with small amounts of common chemicals can be dangerous:
 - Careful handling of hazardous substances is important for **your** safety and for the safety of your **colleagues!**
- All chemicals need to be registered in the register of hazardous substances of the university (**CLAKS**)
- Informationen about used chemicals:
hazard pictograms, **H**azard & **P**recautionary statements, material safety data sheet (CLAKS)
- People/Groups working with hazardous substances need a **separate** (working place related) instruction (group leader or deputy, safety delegates)

Hazardous substances

- Only use little necessary amounts, small bottles not more than “daily use”
- Bigger amounts need to be stored in the chemical storage in building 61 or at CFEL/annex
- Wear proper safety equipment:
Lab coats/long pants/closed shoes/ protection gloves + goggles
- Use of suited containers
- Labelling (CLAKS)



Hazardous substances

- Disposal of chemicals:
All substances for disposal are kept at the storage of dangerous materials next to building 65!
- **Before** this happens:
Do you have the correct container?
Is it correctly filled? And properly labelled?
How to transport it there?

→ prepare list of substances

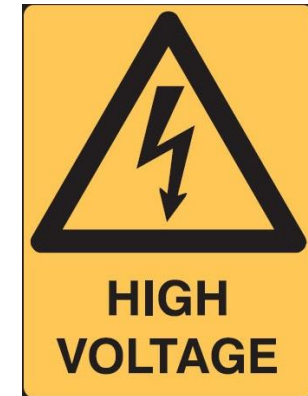
Questions concerning proper disposal:
safety delegates
experts for waste disposal

Transport container/labels: O. Becker (8998-4703), M. Wieland (8998-2143)



Elektrical devices /High voltage

- Potential dangers :
High voltage and/or current → touching powered parts
- Powered parts must be shielded against touching if voltage is higher than **25V(AC)** or **60V(DC)**, labelling!
- Devices generating voltages above **1kV** must be labelled with „High voltage“
- Only use HV-compatible plugs and cables
Assembly only by electrical workshop!
- **NEVER** change any main power installation!



Handling of pressurized gas containers

- Risks:
 - Displacement of air: 50l/200bar → 10m³ gas at ambient pressure
 - tilting: stored energy of 50l/200bar corresponds to roughly 0,25 kg TNT
 - Usage only allowed **AFTER** being instructed
- Storage only in an appropriate **gas bottle storage**, supply (secured) in the lab is allowed
- Secure bottles against tilting over **BEFORE** usage, never expose to heat!
- **NEVER** move without protection cap/do **NOT** use valve as handle
 - Usage of gas bottle cart
- **Labeling** of laboratories needed (fire brigade!)




Umgang mit Druckgasflaschen

- Color code according to type of gases:
Only use pressure reducers suited for the used gas!



Inerte Gase


Beispiele:
Stickstoff N₂
Argon Ar
Helium He
Kohlendioxid CO₂

 *Unterstützen das Leben nicht und können zum Tod durch Erstickung führen*



Brandfördernde Gase

Beispiele:
Sauerstoff O₂
Lachgas N₂O

 *Unterstützen und beschleunigen die Verbrennung*



Brennbare Gase


Beispiele:
Wasserstoff H₂
Butan C₄H₁₀
Propan C₃H₈
Acetylen C₂H₂

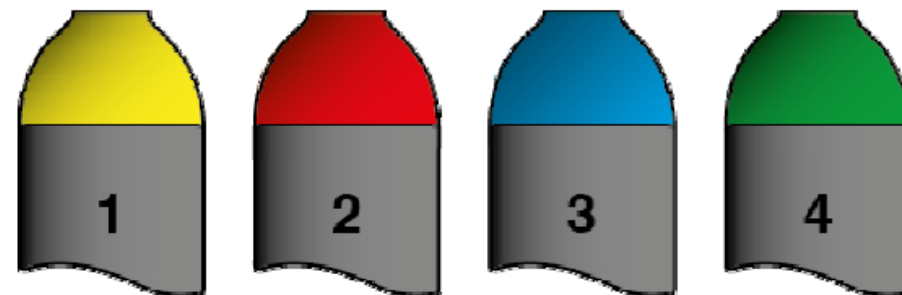
 *Brennen*



Giftige Gase

Beispiele:
Kohlenmonoxid CO
Ammoniak NH₃
Chlor Cl₂
Phosgen CCl₂O

 *Vergiften unseren Organismus und können zum Tod durch Vergiftung führen*



Division in gas types:

1 → toxic, corrosive

2 → flammable

3 → oxidising

4 → inert

⇒ **Observe risk assessments & operating instructions**

Liquefied gases

Using liquefied gases (liquid nitrogen/helium) the following risks occur:

- Freezes (cold burns) by direct contact
- Suffocation due to evaporation of huge amounts of liquefied gases in rooms
 - Use PPE: full cloths and shoes suited gloves, safety goggles/face shield
 - Never transport liquefied gases **AND** persons simultaneously in an elevator!
 - Insure sufficient ventilation
- Possibility of oxygen enrichment/explosion risk

⇒ Handling of liquefied gases is allowed for instructed persons only.

⇒ Persons allowed to order (liquefied) gases from the DESY-Gaselager need a special instruction

⇒ **Follow risks assessments/operation instructions!**



Ionising radiation and artificial optical radiation

In case of possible exposure to ionising radiation (working place according to Strahlenschutzverordnung (StrlSchV)) or artificial optical radiation (Ordinance on Artificial Optical Radiation (OstrV)) the following **SEPARATE** safety trainings are required:

Working with

- radioactive sources
- activated parts
- sources of stray radiation/accelerators

→ Radiations safety lecture!!!

Working with

- Lasers of class II-IV
- UV or IR radiation

→ Laser radiation safety lecture!!!



Sexual harassment and assault at work



Overview

- Definition - legal basis
- Recommendations
- Contact points/support

Why raise the topic here?

- Our actions affect others and vice versa
- We all need to set limits to and not tolerate sexual misconduct (guideline of the UHH)
- Create awareness and provide information
- **Mandatory measure for everyone: safety lecture**

Legal basis and definition

General act on Equal treatment (Allgemeine Gleichbehandlungsgesetz) §3 Abs 4

Sexual harassment shall be deemed to be discrimination [...] when an **unwanted conduct of a sexual nature**, including

- unwanted sexual acts and requests to carry out sexual acts
- physical contacts of a sexual nature, comments of a sexual nature
- as well as the unwanted showing or public exhibition of pornographic images, takes place with **the purpose or effect** of violating the **dignity** of the person concerned, in particular where it creates an intimidating, hostile, degrading, humiliating or offensive environment.

What defines sexual harassment?

Characteristical for sexual misconduct

- One-sided
- against the will and consent of the concerned person
- Violates the dignity of the concerned person

Decisive is the individual perception of the concerned person

Devastating Statistics

- Germany (2004, Bundesministerium): 24% of interviewed women have been sexually harassed in working environment last 12 months
- Europe-28 (2014): 22% report sexual harassment (violence) last 12 months (but 75% in management) in work context, heavily under-reported
- Australian Universities (2017): 21% sex. harassment (94% do not report)
- Vast majority of perpetrators (up to 99%) are male (also male victims)
- Terrible consequences – for the victims (anxiety, loss of confidence, vulnerability, depression, trauma, psychosomatically caused physical diseases)

Forms of sexual harassment

- verbal: intrusive comments about physical appearance, sexually suggestive comments/jokes, inappropriate invitations, sexually explicit emails/messages
- Non verbal: inappropriate staring, leering, unwelcome touching, stalking, exposing
- Sexual assault

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Proper Conduct

- Respect others and set limits ↔ no tolerance for sexual misconduct
- Mind the cultural context
- Supervisors: set limits, create awareness, optimize the working environment/laboratories
- If you feel sexually harassed: confront the perpetrator or seek help
- **Each one of us can contribute to create a safe and healthy work environment**

Assistance – support – help

- Equal opportunity officers on campus:
 - University: Dieter Horns/Erika Garutti
 - QU Consultant for Diversity and Equality: Eileen Schwanold
 - DESY: A.C. Jauch

We are primarily committed to help you – we provide council and support – confidential and independent

#GRENZEN SETZEN!...

Vertrauensperson für Beschäftigte

Dr. Lisa Gutenbrunner

Ansprechperson für Sozialberatung, sexuelle Diskriminierung und Belästigung
Welckerstraße 8, 5. Stock, Raum 5.17
20354 Hamburg

Telefon: +49 40 42838-5300

Mobil: 0151 5833-2361

E-Mail: lisa.gutenbrunner@uni-hamburg.de



<https://uhh.de/kontaktstelle-sexuelle-diskriminierung>

