



**ERNST RUSKA-CENTRE (ER-C 1, ER-C 2, ER-C KI)
AND
PETER GRÜNBERG INSTITUTE (PGI 5)**

**INTERNAL BULLETIN ON OCCUPATIONAL HEALTH AND
SAFETY
VERSION 29 JANUARY 2018**

This memorandum is a summary of elementary security measures and safety regulations for work-related operations carried out at the Institutsbereiche (Divisions) “Physics of Nanoscale Systems” (ER-C 1) and “Materials Science and Engineering” (ER-C 2) as well as the Section “Coordination and Infrastructure” (ER-C KI) of the Ernst Ruska-Centre (ER-C) and the Division “Microstructure Research” (PGI 5) of the Peter Grünberg Institute (PGI). It does not supersede the workplace related Instruction Sheets („Betriebsanweisungen”) which are to be presented to all staff working in specific laboratories in the framework of an annual instruction on industrial safety and accident prevention to be given by the Room Officers or Local Sector Officers. On legal grounds it is emphasised that the safety regulations of the Research Centre Jülich (FZ JÜLICH) are valid on their own and in their entirety.

1. REPORTING ACCIDENTS

FZ JÜLICH's Safety Control Centre („Sicherheitszentrale”), which is in operation all day, will forward any incoming information regarding accidents at work, cases of damage and requests for assistance to appropriate emergency services. The Safety Control Centre is on call from any FZ JÜLICH telephone set at

EMERGENCY CODE („NOTRUF”) 77

or in case of using mobile phones at

++49.(0)2461.61.77

likewise via the emergency call boxes. Upon calling the Safety Control Centre you are requested to specify the numbers of your building („Gebäude(nummer)”) and room („Raum(nummer)”) together with the associated entrance numbers („Eingang(snummer)”), which are specified on adhesive labels at the telephone sets. Building numbers of rooms used by the Divisions of ER-C are 05.2S for the ER-C annexe and 05.2W for the old ER-C building. Building numbers for rooms

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Your reference:
Your letter of:
Our reference:
Our letter of:

Jülich 29 January 2018

used by PGI 5 are 04.6 for the old IFF building (1960s style) and 04.8 for the new IFF building (1970s style).

2. COMPANY MEDICAL OFFICER

In case you have to consult a medical doctor, please feel free to contact the Research Centre's Medical Office („Betriebsärztlicher Dienst“) in building 15.2, which is located opposite the Seekasino, or at telephone number 5572.

3. SECURITY RELATED PERSONNEL TO BE CONTACTED

In the following a listing of personnel in charge with regard to industrial safety and accident prevention at the Divisions of the ER-C and PGI 5, respectively, is given. The roles and responsibilities of individual officers and persons in charge reveal themselves from the subsequent sections of this bulletin.

- a) The Local Sector Officer („Bereichsbeauftragte“) of the Ernst Ruska-Centre (ER-C) is Mr Werner Pieper (building 05.2W, room 3083, phone 6700 – holding responsibility for buildings 05.2S und 05.2W). The Local Sector Officer of the Division Microstructure Research (PGI 5) is Mr Carsten Thomas (building 04.6, room 96, phone 3152 – holding responsibility of rooms used by PGI 5 in buildings 04.6 und 04.8).
- b) The joint Local Security Officer („Sicherheitsbeauftragter“) of the Ernst Ruska-Centre (ER-C) and the Division Microstructure Research (PGI 5) is Mr Rolf Speen (building 04.6, room 59, phone 3605).
- c) The Superior Security Officer („Sicherheitsbeauftragte“) of the Peter Grünberg Institute (PGI) is Mr Gernot Kinzel (building 04.8, room 224, phone 4365).
- d) The joint Local Laser Protection Officer („Laserschutzbeauftragter“) of the Ernst Ruska-Centre (ER-C) and the Division Microstructure Research (PGI 5) is Dr Michael Schnedler (building 04.6, room 98, phone 3155).
- e) The joint Ladder Safety Officer („Leiterbeauftragter“) of the Ernst Ruska-Centre (ER-C) and the Division Microstructure Research (PGI 5) is Mr Carsten Thomas (building 04.6, room 96, phone 3152).
- f) The joint Local Radiation Protection Officer („C-Strahlenschutzbeauftragter nach StrlSchV und RöV“) of the Ernst Ruska-Centre (ER-C) and the Division Microstructure Research (PGI 5) is Mr Werner Pieper (building 05.2W, room 3083, phone 6700).
- g) The Superior Radiation Protection Officer („B-Strahlenschutzbeauftragter nach StrlSchV und RöV“) of the Peter Grünberg Institute (PGI) is Mr Carsten Thomas (building 04.6, room 96, phone 3152).
- h) The joint Superordinate Radiation Protection Officer („A-Strahlenschutzbeauftragter nach Strahlenschutzanweisung zur Aufgabenzuweisung und Zuständigkeitsabgrenzung der Forschungszentrum Jülich GmbH auf Basis der

Internen Regelung 831-1 i.d.F. vom 13-04.2005”) of all Divisions of the Ernst Ruska-Centre (ER-C) is Professor Dr Joachim Mayer (building 05.2S, room 3001, phone 6070). Those of the Division PGI 5 is Professor Dr Rafal Dunin-Borkowski (building 05.2S, room 3005, phone 9297).

- i) For all rooms used by the ER-C and by PGI-5 for experimental and specimen preparation purposes Room Officers („Raumverantwortliche”) have been appointed which support the Local Sector Officers as regards their obligations and responsibilities, cf. below. Room Officers are persons to contact in case of absenteeism of Local Sector Officers. The names of Room Officers are specified in the instruction sheets („Betriebsanweisungen”) displayed in respective rooms.
- j) The full collection of accident at work prevention regulations and memoranda for handling hazardous working substances is kept by the Local Sector Officers or can be raised by them. Electronic versions of accident prevention regulations („Unfallverhütungsvorschriften“) are also available through the world wide web at
http://dp.bgetem.de/pages/medien/auswahl_nach_art/uvv.htm
electronically.
- k) Up-to-date information on the names of the above specified officers and persons in charge for rooms used by the ER-C (buildings 05.2S and 05.2W) is available at **www.er-c.org/atiss/s-a.htm** together with electronic versions of the room specific instruction sheets („Betriebsanweisungen”).

4. RESPONSIBILITES AND COMPETENCES

- a) In accordance with internal regulations of FZ JÜLICH, a security vetting by staff members from the Operational Division on Safety and Radiation Protection (S) together with the Local Sector Officers is held annually. Relevant deficiencies are to be remedied without delay by Local Sector Officers in consultation with the Room Officers in charge.
- b) A general briefing on occupational health and safety addressing all ER-C 1, ER-C 2, ER-C KI and PGI 5 staff members and guests, given by the Head(s) of respective Divisions and Sections, is to be held once a year at least. Participation in this briefing is to be confirmed by signing the associated attendance list. During the briefing, the latest updated version of the “internal bulletin on occupational health and safety”, i.e. this document, will be distributed to participants. It must be kept within reach at any staff member’s and guest’s workplace.
- c) A workplace, i.e. a room specific, briefing on industrial safety and accident prevention is to be given by the Room Officers or the Local Sector Officers at

least once a year. Attendance to this briefing is to be confirmed by signing the associated attendance list¹.

- d) Any new member of staff (including PhD and diploma (or similar) students as well as trainees) joining any of the ER-C Divisions or PGI 5 in the course of the year will be instructed by the Local Sector Officer in charge regarding health and security measures as well as safety regulations. Participation in the briefing event is to be confirmed by signing an associated document. For new staff concerned with electron microscopy experiments, the briefing will also include an instruction concerning measures against x-ray harms according to § 36 of the federal radiation control regulations („Verordnung über den Schutz vor Schäden durch Röntgenstrahlen (RöV)“).
- e) External users² of ER-C resources – especially those using experimental or preparational equipment – are to be instructed by the respective Project Leader in charge for handling of the project.³ This course of action also applies to short-term stays if safety-related work is to be carried out. During the briefing, the latest updated version of the “internal bulletin on occupational health and safety”, i.e. this document, together with copies of the relevant instruction sheets („Betriebsanweisungen“) will be distributed to corresponding personnel and guests. Participation in the briefing event is to be confirmed by signing an associated document.
- f) For staff members who have not developed a near-native command of the German language, the safety briefing will be given in English. The English version of the “internal bulletin on occupational health and safety“ will be handed out in the framework of this briefing.
- g) Both, staff as well as external users and guests, who have neither developed a near-native command of the German nor the English language are not allowed to make use of any experimental equipment – including the operation of electron microscopes – without being permanently supervised by a German- or English-speaking staff member. In corresponding cases either the disciplinary superior (staff) or the ER-C project officer (external users and guests) are responsible to ensure an adequate permanent supervision.
- h) Before putting new apparatus or of peripheral components of existing instruments into operation or before starting to work with new substances, the Local Sector Officer in charge is to be consulted mandatorily. This is particularly true regarding extraneous perils coming along with the no observance of regula-

¹ As far as the Divisions of the ER-C are concerned this briefing is given by a representative of the ER-C directly following the annual general briefing on occupational health and safety, cf. above.

² External users are persons, which according to their work contract are neither regular ER-C 1, ER-C 2, ER-C KI nor PGI 5 personnel. This means that FZ JÜLICH staff members actually belonging to other institutes are to be regarded as external users.

³ In individual cases and upon mutual agreement, the Project Leader may delegate his responsibility for briefing external users to a sufficiently qualified ER-C member of staff.

tions concerning electrical safety, explosion protection, safety in handling of x-ray equipment and interference emitters, e.g. electron microscope facilities, in handling radioactive substances as well as chemicals and nanomaterials. As regards the ER-C, beyond the Local Sector Officer, the Room Officers and the General Manager of the ER-C are to be consulted additionally.

- i) For any commissioning or initial operation of experimental facilities, especially when test operations are to be undertaken, the approval of a responsible trained member of staff is to be requested. Regarding electrical installation safety and radiation protection security, the above trained member of staff is Mr Werner Pieper across-the-board.
- j) Local Sector Officers and Room Officers in charge are authorised to issue directions to ER-C 1, ER-C 2, ER-C KI and PGI 5 personnel and guests as regards occupational health and safety. In cases of incongruity Local Sector Officers are superior to Room Officers.

5. GENERAL REMARKS ON HEALTH CARE AND ACCIDENT PREVENTION

The “internal bulletin on occupational health and safety“ at hand does not on any account replace one or another regular accident prevention regulation. It is merely intended to draw attention to imminent hazards, regulations for action as well as safety measures resulting from the special (experimental) work carried out at the ER-C 1, ER-C 2, ER-C KI and PGI 5 Divisions and Sections, respectively. You are, however, kindly requested to observe the following basic rules:

- a) Inform yourself about any possible danger coming along with your work.
- b) Provide yourself with the necessary safety equipment, e.g. special protection goggles, gloves, and brogues or work shoes.
- c) Report any lack of safety equipment, e.g. safety goggles to be used during liquid nitrogen filling, to the Local Sector Officers.
- d) Report any safety deficiency you notice to one or another of the Local Sector Officers.
- e) Only undertake work involving special risks regarding security or work with hazardous substances if another person is nearby and will be able to help in case of emergency.
- f) Report any accident in any case at any time. This also includes critical incidents such as the leaking or escaping of hazardous substances, contact with or incorporation of hazardous substances, even if apparently nobody has been injured. Corresponding courses of action are to be undertaken in order to maintain your insurance coverage.
- g) Make sure to have all injuries medically treated, even if the incident appears to be of minor significance or harmless at a first glance. This is especially true

when handling chemicals and nanomaterials where the effects of incorporation or contact may appear much later.

6. SPECIAL INSTRUCTIONS CONCERNING ELECTRICAL SAFETY

- a) All mobile electrical equipment is to be examined biennially and to be provided with an inspection plate badge. The appropriate revision is centrally arranged and executed by JCNS-PGI-TA staff. The definition of checking intervals (severely exposed equipment will be checked at shorter intervals), the checking of electrical instruments itself, and keeping of the corresponding records will be undertaken by trained personnel instructed by the JCNS-PGI-TA. Neither ER-C 1, ER-C 2, ER-C KI nor PGI 5 staff is permitted to use electrical equipment showing expired inspection badges. Room Officers and Local Sector Officers are urged to arrange for an additional examination in order to make further use of the respective equipment.
- b) Opening of power-driven equipment or power installations in experimental facilities, e.g. for fault diagnosis and repair, is not allowed in general. Exceptions can only be made by staff endowed with a written authorisation. It is emphasised that this also applies to equipment types usually considered harmless. For example, personal computers are only to be opened for the installation of cards and accessories, if contact or a modification in the region of live parts is impossible. Modifications to electrical power installations of any type, even for the purpose of repair, are not permitted.
- c) Any experimental facilities with power installations need to be accepted by the Local Sector Officers prior starting-up or restarting corresponding facilities after modifications have been made. Furthermore, regulation according to 6 (a) and 6 (b) explicitly apply in these cases.
- d) Power installations are installations with voltages above the threshold values defined by the European low voltage directive. These amount to 50 V for alternating currents (AC) and 120 V for direct currents (DC).
- e) Any experimental facility or equipment which no longer fulfils the conditions of equipment conformity, e.g. due to a full or partial removal of the case, must be clearly labelled to prevent other personnel, who do not know of such manipulation, from being injured.
- f) (Un)intentional dropping of equipment, coolant leakages in the vicinity of electrical installations, stumbling over electric cables or other incidents of similar kind may cause imminent hazards due to damage and effects that may not be immediately identifiable. Please be good enough to inform the appropriate Local Sector Officer in corresponding cases and disconnect the equipment from the mains in these cases in front of the Local Sector Officer.

7. SPECIAL INSTRUCTIONS FOR HANDLING OF VACUUM VESSELS, GLASS CRYOSTATS AND GLASS DEWARS

- a) Filled helium and nitrogen glass cryostats possess an internal pressure below atmospheric pressure. Please beware of an imminent danger of implosion when handling corresponding glass cryostats.
- b) Nitrogen and helium glass cryostats are to be harboured during utilisation using a protective shield of metal or an appropriate acrylic glass, e.g. Lucite®, Perspex®, and Plexiglas®.
- c) A leather apron, face protection, leather gloves, and closed-toe shoes are to be worn mandatorily during assembly, filling, and transport of glass cryostats.
- d) Protective pairs of goggles and closed-toe shoes are to be worn when handling small mobile nitrogen glass flasks.

8. SPECIAL INSTRUCTIONS FOR HANDLING OF COOLANTS

- a) Protective pairs of goggles, leather gloves and closed-toe shoes are to be worn when decanting liquid helium or liquid nitrogen.
- b) Spills of liquid nitrogen evaporate, the cold gas is heavier than air and accumulates close to the ground displacing the oxygen required for breathing. Hence, a danger of suffocation emerges in closed small rooms as one litre of liquid nitrogen yields approximately 700 litres of gaseous nitrogen. Hence, larger quantities of liquid nitrogen (> 10 litres) must not be decanted in small rooms (< 15 square metres) or the doors of the rooms must be left opened during decanting.
- c) Containers filled with liquid helium or nitrogen likewise filled gas cylinders must not be simultaneously transported with personnel in any lift.

9. SPECIAL INSTRUCTIONS FOR HANDLING CHEMICALS AND MATERIALS

- a) You are requested to inform yourself about any possible dangers and protective measures to be undertaken before handling chemicals and materials not used so far. Contact your Local Protection Officer in the case of any new substance to be utilised. This accommodative likewise mandatory measure is always to be performed for precaution reasons even if you suppose that you are handling harmless substances. Read up on potential dangers and handling instructions when making use of chemicals and materials stored in laboratories at

<http://sa-damaris.ass.kfa-juelich.de> (logon: iff-erc – password: aephivas)

before using these substances. Contact your Local Protection Officer if you intend to make use of new chemicals and materials in ER-C or PGI-5 laboratories or if you intend to store known materials in quantities not reported so far. Room Officers or Local Protection Officers will adapt DaMaRIS records if necessary.

- b) In view of potential long-term risks induced by nanosize objects, notably to the environment and human health, procedural guidelines as regards the handling of nanomaterials available at

www.baua.de/de/Themen-von-A-Z/Gefahrstoffe/Nanotechnologie/Links-Beispiele.html

are mandatorily to be checked and complied with when experimental procedures, e.g. TEM specimen preparation or vaporisation experiments, will involve the creation, handling and recycling of nanomaterials.

- c) It is not permitted to store chemicals in any laboratory, other rooms used for experimental analyses or in offices; only small quantities (on a daily consumption basis) are allowed to be stored correspondingly. If larger quantities are required in the long run they are to be ordered consecutively.
- d) Cylinders and containers for chemicals are to be labelled carefully. This measure does not only serve to avoid unintentional mixing but also alleviates disposal procedures. Labelling is, hence, absolutely necessary. The minimum information to be given includes the name of the chemical product, the person in charge, the date of filling the container or setting up the chemical and the GHS symbol(s).
- e) On no account chemicals are allowed to be kept in fume hoods. Instead, they are to be stored in the cabinets provided for these purposes.
- f) Gloves together with an appropriate face and eye protection equipment are to be worn mandatorily when handling chemicals.
- g) No chemicals and organic solvents are permitted to be disposed of in the coolant water outlets or the white washbasins. Instead, disposal vessels, which are available from Ms Doris Meertens, Ms Wilma Sybertz and Ms Eva-Maria Würtz, are to be used for these purposes.
- h) Small amounts of specific water soluble chemicals and solvents may be disposed of using the brown laboratory sinks provided they are sufficiently thinned out with water. Before doing so the Local Section Officers must be consulted and asked for permission to avoid problems. Liquid effluents are continuously monitored by sensors immediately in front of the building. Any misconduct will be definitely discovered and pursued.
- i) As there is an imminent danger of caustic effects, the Research Centre's Medical Officer must always be consulted if you have come into contact with hydrofluoric acid. For these purposes seek out Medical Office („Betriebsärz-

tlicher Dienst“) in building 15.2 near the Seecasino or contact the Safety Control Centre at

EMERGENCY CODE („NOTRUF“) 77

or in case of using mobile phones at

++49.(0)2461.61.77

- j) Any mechanical or electrical operation work on beryllium or compounds containing beryllium, e.g. Cu-Be alloys, is strictly forbidden. Beryllium is frequently used as a window material for x-ray detectors and as an x-ray-neutral material for electron microscope object mounts. Even extremely small quantities of beryllium dust are highly toxic and carcinogenic. You are kindly asked to avoid the use of respirational driven butterfly tweezers for the positioning of mounting systems (hexrings and spring-lock washers) containing beryllium at the electron microscopes.
- k) Dusts and aerosols, as produced, e.g. during vaporisation upon melting of metals, represent a health risk not to be underestimated. Relevant facilities, e.g. in crystal growing, are to be cleaned using respiratory masks, protective gloves and appropriate laboratory vacuum cleaners to be operated in fume hoods or under wet environment conditions.
- l) Oxidants, e.g. hydrogen peroxide, soaked with paper are pyrophoric and may, hence, begin to burn even in high dilution and with hours of time delay. When wiping up spilled quantities of such substances, take care that there is no danger of formation of fire. Do not throw any soaked paper into the wastepaper baskets.
- m) Oxyhydrogen gas mixtures (hydrogen-oxygen) must not be used.

10. SPECIAL INSTRUCTIONS FOR HANDLING PRESSURE CYLINDERS

- a) Pressure cylinders are to be fastened to walls or sufficiently rigid laboratory benches by a chain.
- b) Pressure cylinders are to be transported in a horizontal position or by making use of specially designed hand carts with the instrument protection covers in operation.

11. SPECIAL INSTRUCTIONS REGARDING THE HANDLING OF ELECTRON MICROSCOPES AND INTERFERENCE EMITTERS

- a) Electron microscopes are strong sources of x-ray emission. They are equipped with radiation protection plates and are type-tested. The x-ray shielding must not be removed in any case. This also applies to test operations in case of repair or servicing.

- b) High electric voltages are used for electron microscopes. The charges present in capacitors in the voltage generation system and in the high-voltage part may be lethal. The electronic cabinets must therefore always remain locked. They may only be opened by authorised and trained personnel as well as sector, security and room officers in cases of need.
- c) Beryllium components are used in electron microscopes, namely in the x-ray analysis system, the x-ray detector and the object mounts. Gloves must be worn in handling these components. It is strictly forbidden to perform any surface machining on these components as the beryllium dust produced is extremely toxic.
- d) Experience demonstrates that, in vacuum facilities where voltages are used for deflection or measuring purposes, x-rays may emerge from discharges in the case of a poor vacuum. No acrylic glass, e.g. Lucite®, Perspex®, or Plexiglas®, observation windows should therefore be installed in the vicinity of such sources. Only heavy glass windows are to be used instead. Care should be taken in debugging, and radiation meters are to be used. Devices which usually do not emit x-rays may become strong sources of x-ray emission in case of any malfunction.
- e) The first time use of modified or home build electron microscopy aperture and samples holders or other electron optics components necessitate a preceding measurement on x-ray safety and a release by the local radiation protection officer. This also applies to test operations of holders under development and for the testing of detector systems.

12. SPECIAL INSTRUCTIONS REGARDING LASER SAFETY

- a) To minimise the risk of laser accidents, EN207-compliant protection safety goggles are to be worn mandatorily when operating instruments equipped with exposed laser systems. Adequate eye protection should always be required for everyone if there is a significant risk for eye injury.
- b) Alignment of laser beams and optical components should be performed at a reduced beam power whenever possible.
- c) High-intensity laser beams that can cause fire or skin damage (mainly from class 4 and ultraviolet lasers) and that are not frequently modified should be guided through tubes.
- d) Staff is not permitted to dismantle laser systems or devices containing laser systems. Please contact the Local Laser Protection Officer if laser systems are in need of service or maintenance.

13. PROHIBITIONS RELATED TO ACTIVITIES BEYOND REGULAR WORKING HOURS AND DAYS OF FZ JÜLICH

Any work-related activities are generally prohibited in ER-C 1, ER-C 2, ER-C KI and PGI 5 rooms on Sundays, public holidays and bridging days as well as during company holidays unless they have been instructed by an FZ JÜLICH company agreement (e.g. to host major events like open day)⁴. Exceptions are only possible if corresponding activities cannot be carried out as a matter of principle on weekdays⁵ with the reasoning complying with the exceptions explicitly mentioned in the German Work Time Act („Arbeitszeitgesetz – ArbZG“). As far as activities of the ER-C Divisions and the PGI 5 are concerned, exceptions according to § 10(1) ArbZG are only given by an imminent failure of work results if operations cannot be carried out on Sundays and public holidays, bridging days or during company holidays as well as when long-term experiments spanning over more than six days are to be carried out and the necessity of a continuation of the experiment has been confirmed in writing by the superior Division or Section head in charge.

As regards operations on weekdays (Monday to Saturday) the following differentiation is made between operations in rooms with low safety risks and those with high safety risks.

Low safety risk: office rooms, computer and terminal rooms, electron microscopy laboratory rooms provided that the instruments have been type-tested and/or CE-certified.

High safety risk: workshops, chemistry and furnace rooms, laboratories where (i) experimental devices are installed, unless these are CE-certified or fulfil a safety standard corresponding to a CE certification, (ii) work at high temperatures and pressures is carried out, (iii) work involving a danger of explosion or suffocation is carried out, (iv) work at facilities with open power installations is performed.

Any operations in areas with a high safety risk are forbidden off regular working hours of FZ JÜLICH⁶ as a basic principle. Hence, all activities in these areas are also forbidden on Saturdays, Sundays, public holidays, bridging days and during company holidays.

⁴ Cf. circular letter („Rundschreiben“) 17/2005 of FZ JÜLICH dated 16 December 2005.

⁵ German law distinguishes between „Werktage“ (weekdays) and „Arbeitstage“ (working days). „Werktage“ are all days except of Sundays and public holidays. „Arbeitstage“ refer to formally agreed regular working days of a specific company. As regards FZ JÜLICH all days apart from Saturdays, Sundays, public holidays and bridging days are „Arbeitstage“.

⁶ Regular working hours of FZ JÜLICH are 0800 hrs to 1640 hrs from Monday to Friday exclusive of public holidays, bridging days and company holidays, cf. „Rundschreiben“ 26/2015 dated 28.10.2015.

Beyond regular working hours of FZ JÜLICH exceptions are only possible, if the OPTRA high-frequency positioning system is used and work is carried out with the direct agreement and knowledge of a second person who then remains nearby and is immediately able to offer assistance in case of emergency. It is emphasised that it is not sufficient that such a second person is somewhere in the building, Instead, this second person must be in the immediate vicinity being informed about his role and actively exercising the supervision function. Exceptions are also possible if there is a binding agreement with the Operational Division on Safety and Radiation Protection (S) concerning personnel monitoring.

Off regular working hour operations are permitted weekdays in low safety risk areas. It is however recommended to make use of the OPTRA high-frequency positioning system when working in low safety risk electron microscopy laboratory rooms outside normal working hours. The general prohibition on works on Sundays, public holiday and bridging days as well as during company holidays, cf. above, also applies to rooms with low safety risks without restrictions.

The aforementioned differentiation regarding safety risks and regulations with regard to general working hours are valid for all ER-C 1, ER-C 2, ER-C KI and PGI 5 staff likewise for external users of ER-C resources.

14. COURSE OF ACTION IN CASE OF IMMEDIATE DANGER

In case of danger due to escaping harmful gases, danger of fire and explosion:

Do not hesitate! Make an emergency call at code 77 or via ++49.(0)2461.61.77 when using a mobile phone.

Safety Control Centre ("Sicherheitszentrale") personnel is trained to assist you and will in no case take amiss any false alarm or alarm in cases which subsequently turns out to be less severe.

15. COURSE OF ACTION IF A BUILDING IS TO BE EVACUATED

In case of particular danger, an evacuation of one or another building may be initiated through the FZ JÜLICH public address system. If you listen to a three-stage idiophone signal, this means a particularly threatening danger. Unfortunately, this signal sounds harmless, do not get reassured, but act immediately instead.

Only attend to your equipment, e.g. by closing gas taps or by shutting down hydrogen sources, only insofar as an immediate leaving would cause a high hazard potential. Leave the building immediately.

Please bear in mind that colleagues might not have listened to the announcement and that announcements are usually given in German (or a local variation of Ger-

man) so that your foreign colleagues may not have become aware of the dangerous situation. Inform them about the evacuation instruction.

Adjourn to the collecting point („Sammelplatz“) assigned to the building you have stayed in when the evacuation directive was given. The joint collecting point of the ER-C and the PGI-5 is the entrance area of the central library in building 04.7. Do not leave the FZ JÜLICH campus before the ER-C or the PGI-5 management or representatives of the Safety Control Centre have told you. You may in no case re-enter the building before an express clearance has been given.

16. COURSE OF ACTION IN CASE OF REACTOR MISFORTUNES

Evacuation areas have been designated around the nuclear reactors on FZ JÜLICH campus. Rooms used by the PGI 5 Division (buildings 04.6 and 04.8) are located in evacuation area 1. The ER-C (buildings 05.2S and 05.2W) is located in evacuation area 2.

The escape gates to be used when evacuating the campus in the case of reactor misfortune are the

Main Gate („Haupttor“) for building 04.6 (old IFF building)

and the

Biology Gate („Fluchttor Biologie“) for building 04.8 (new IFF building) as well as for buildings 05.2S und 05.2W (ER-C) although the Hambach Gate („Hambacher Tor“) is closer.

In case of a site evacuation alarm, there are two warning announcements:

Prepare to Evacuate („Räumungsbereitschaft“)

In this case, you should remain indoors and wait for further announcements.

Immediate Evacuation („Soforträumung“)

You should leave the site immediately by the appropriate escape gate, cf. above.