INSTRUCTION SHEET No 1871-01-18-OvB-001

LABORATORY AND CABINET ROOMS FOR THE OPERATION OF ELECTRON MICROSCOPES

EDITION 4 FEBRUARY 2020

Building 05.2S	Workplace	Person(s) responsible	Phone
Room 1000	Corridor	Werner Pieper	6700
Room 1005	Light optics laboratory	Drs. Hilde Hardtdegen / Martin Mikulics	2360 / 5399
Room 1008a	TEM Zeiss Libra 120	Dr. Johan Buitenhuis / Werner Pieper	3146 / 6700
Room 2000	Corridor	Werner Pieper	6700
Room 2002	FIB FEI Helios NanoLab 400S	Lidia Kibkalo / Max Kruth	3910 / 2418
Room 2003a	TEM FEI Titan 80-300 TEM	Drs. Andreas Thust / Andras Kovacs / Juri Barthel	6644/9276/2418
Room 2003b	TEM FEI Titan 80-300 TEM – T.	Drs. A. Thust / A. Kovacs / J. Barthel	6644/9276/2418
Room 2004a	TEM Hitachi HF 5000	Drs. Knut Müller-C. / N.N.	85237 / -
Room 2004b	TEM Hitachi HF 5000 – T.	Drs. Knut Müller-C. / N.N.	85237 / -
Room 2005	TEM FEI Titan 60-300 PICO	Drs. Juri Barthel / Hongchu Du / Lei Jin	2418/85176/8037
Room 2006	TEM FEI Titan 60-300 PICO – T.	Drs. Juri Barthel / Hongchu Du / Lei Jin	2418/85176/8037
Room 2009	TEM FEI Titan 60-300 HOLO – T.	Drs. Yoshie Murooka / Amir Tavabi	9265 / 9478
Room 2010	TEM FEI Titan 60-300 HOLO	Drs. Yoshie Murooka / Amir Tavabi	9265 / 9478

Building 05.2W	Workplace	Person(s) responsible	Phone
Room 1000	Corridor	Werner Pieper	6700
Room 1065	SEM TFS Apreo VS	Dr. Beate Förster / N.N.	85112 / -
Room 1066	SEM JEOL 840A and 7400F	Eva-Maria Würtz / Werner Pieper	6682 / 6700
Room 1067	TEM JEOL 200 FS – Technik	Dr. Beate Förster / N.N.	85112 / -
Room 1068	TEM JEOL 200 FS	Dr. Beate Förster / N.N.	85112 / -
Room 1071	TEM FEI Tecnai F20	Drs. Martina Luysberg / Marc Heggen	2391 / 6700
Room 1072	TEM FEI Tecnai F20 – Technik	Drs. Martina Luysberg / Marc Heggen	2391 / 6700
Room 2000	Corridor	Werner Pieper	6700
Room 2084	TEM FEI Titan 80-200 CREWELEY	Drs. Andras Kovacs / Roland Schierholz	9276 / 1686
Room 2087	TEM FEI Titan 80-300 STEM	Drs. Knut Müller-C. / Martina Luysberg	85237 / 2417
Room 2088	TEM TFS Spectra 300	N.N. / Werner Pieper	- / 6700
Room 2089	TEM TFS Krios G4	Dr. Julio Ortiz / -	2032 / -
Room 2090	TEM TFS Talos 200 Arctica	Dr. Julio Ortiz / -	2032 / -
Room 2091	FIB FEI Helios NanoLab 460 F1	Max Kruth / Lidia Kibkalo	2418 / 3910
Room 2093c	TEM TFS Talos 120	Dr. Julio Ortiz / -	2032 / -

	Local sector officer	Phone
	Werner Pieper	6700

DANGER TO HUMANS AND THE ENVIRONMENT

- Contact with high-voltage parts.
- Improper handling of liquid nitrogen when filling vessels.

- Scaping or leaking SF_6 gas from the instrument's high-voltage tank.
- Handling of chemical products, sample materials, and nanoparticles.
- Improper use of stepladders.

PROTECTIVE MEASURES AND CODES OF CONDUCT

- The instruction manuals and operating instructions of all equipment components and auxiliary equipment are to be followed. These can be found in the laboratories as printed or electronic documents, e.g. in the form of online manuals, which can be accessed through the software on the related control computers.
- Electron microscopes are strong X-ray sources; they are equipped with radiation protection devices and only electron microscopes with this protection are to be used as interference emitters. Do not remove the X-ray shield. This applies in particular for test operation when repairing or servicing the microscope.
- In electron microscopes, the electric charges stored in or supplied to the capacitors, voltage generation and transformation systems as well as other live components can have a lethal effect. Work on high-voltage cables or live components is therefore forbidden.
- Control and electronics cabinets are to be kept closed at all times. Only authorized trained staff are allowed to open control and electronics cabinets. Accordingly, this also applies to all peripheral equipment in the laboratories.
- Electron microscopes have beryllium-containing parts. This concerns the X-ray analyzing system, in particular the X-ray detector, and the locking mechanism of the sample holder. Wear gloves when handling these parts. It is, without exception, forbidden to mechanically modify the surface of the above-mentioned parts on account of the toxicity of beryllium dust.
- You are not allowed to open instruments or peripheral equipment, e.g. to carry out fault diagnostics or repairs.
- Any technical modifications to electron microscopes are strictly forbidden unless the agreed with the persons responsible (instrument officers) and the local sector officer and the general manager of the ER-C.
- In case of a breakdown of the microscope's acceleration voltage immediately check the SF_6 pressure inside the high-voltage tank. When the SF_6 pressure is below the

minimum value indicated by an arrow on the pressure gauge (between 2.5 and 5.0 bar dependent on the instrument), escaping or leaking of SF_6 may (theoretically) foster the danger of asphyxiation in the microscope room as well as in subjacent cellar rooms. In the case of escaping or leaking of SF_6 gas from the high-voltage tank, immediately inform the person responsible (see above) or the local sector officer (see above) who will initiate suitable security measures, e.g. the detection of SF_6 via Haloteck hand sets and pumping down residual amounts of gas from the room's bottom area, if applicable.

- In case of a decrease of the SF_6 pressure coming along with a simultaneous apperception of either an intense chemical odour nuisance or an irritation of the respiratory system (suspect of formation of hazardous products of decomposition) immediately (i) leave the microscope room and close the doors, (ii) report to **EMERGENCY NUMBER 77** on your observation referring to a potential SF_6 leak coming along with the formation of products of decomposition and (iii) give sufficient notice to all staff to evacuate the building downwind.
- Unintentional mechanical load on peripheral equipment, coolant leaks in the vicinity of electric installations, tripping over electric cables or other comparable incidents can lead to high potential hazards due to damage and interferences that are possibly not directly recognizable. Inform the person responsible (see above) or local sector officer (see above) if necessary and unplug the instrument in his presence.
- Always wear safety goggles when handling transportable nitrogen dewars and generally when pouring liquid nitrogen from one vessel to another. It is forbidden to pour large amounts of liquid nitrogen (more than 10 litres) from one vessel to another in small rooms.
- In view of potential long-term risks induced by nanosize objects, notably to the environment and human health, procedual guidelines available at www.baua.de/de/Themen-von-A-Z/Gefahrstoffe/Nanotechnologie/Links-Beispiele.html are manditorily to be consulted before experiments are carried out which will involve the creation, handling and recycling of nanomaterials.
- Keep your work area clean and tidy.
- Any placing, stocking or consumption of comestible goods (meals and drinks) is strictly forbidden in the electron microscopy laboratory rooms.
- When using stepladders, ensure they are properly positioned to prevent accidents caused by instability.
- The general instruction sheet of Research Centre Jülich on power-driven equipment must be observed.
- Report any safety deficiency you have noticed to the person responsible (see above) or the local sector officer (see above).

WHAT TO DO IN CASE OF MALFUNCTIONS

- Turn off the affected installation in the presence of a second person, ideally the person responsible (see above) or the local sector officer (see above).
- Leave the laboratory immediately.
- Report any malfunction to the person responsible (see above) or the local sector officer (see above).

WHAT TO DO IN CASE OF ACCIDENTS – FIRST AID

Notruf 77

- Press the "Not Aus" ("emergency stop") switch.
- Rescue injured persons from the danger zone.
- Give first aid and consult the company doctor **EMERGENCY NUMBER 77**.
- Report the accident to the Safety Control Centre **EMERGENCY NUMBER 77**.
- Inform the person responsible (see above) or the local sector officer (see above).

MAINTENANCE AND DISPOSAL

- Keep the electron microscope including peripheral equipment in good condition.
- Keep corridors free from supply cables and tubes.
- Secure objects lying around or ideally store them in laboratory cabinets.
- Immediately report any incorrect performance of the installation to the person responsible (see above).
- Maintenance and upgrading work is to be carried out by authorized staff only.

CONSEQUENCES OF NONCOMPLIANCE

- Health consequences ranging from harmless injuries to serious illnesses and even death.

Put into force *ex officio* by Dr Karsten Tillmann.

Jülich 4 February 2020

INSTRUCTION SHEET No 1871-01-18-OvB-002

LABORATORY ROOMS FOR TEM SAMPLE PREPARATION AND STORAGE OF TEM PERIPHERY

EDITION 4 FEBRUARY 2020

Building 05.2S	Workplace	Person(s) responsible	Phone
Room 1006	Machine shop / TEM specimen preparation V	Werner Pieper	6700
Room 1007	TEM spare parts storage I	Werner Pieper	6700
Room 1008b	TEM spare parts storage II	Werner Pieper	6700
Room 2001	TEM specimen preparation III	Dr Andras Kovacs / Wilma Sybertz	9276 / 9278
Room 2011	TEM specimen preparation IV	Dr Marc Heggen	9497

Building 05.2W	Workplace	Person(s) responsible	Phone
Room 1070	TEM spare parts storage III	Werner Pieper	6700
Room 1076	TEM spare parts storage IV	Werner Pieper	6700
Room 2085	TEM specimen preparation I	Lidia Kibkalo / Dr Paul Paciok	2418 / 9337
Room 2086	TEM specimen preparation II	Lidia Kibkalo / Wilma Sybertz	2418 / 9278
Room 2092c	TEM spare parts storage V	Werner Pieper	6700

Local sector officer	Phone
Werner Pieper	6700

DANGER TO HUMANS AND THE ENVIRONMENT

- Contact with high-voltage parts.
- Improper handling of chemicals and of liquid nitrogen when filling vessels.
- Handling of chemical products, sample materials, and nanoparticles.
- Improper use of stepladders.

PROTECTIVE MEASURES AND CODES OF CONDUCT

- The instruction manuals and operating instructions of all equipment components and auxiliary equipment are to be followed. These can be found in the laboratories as printed or electronic versions, e.g. in the form of online manuals, or can be obtained from the person responsible for the laboratory room (see above).
- You are not allowed to open high-voltage equipment or installations in experimental arrays, e.g. for carrying out fault diagnostics or repairs. If required, this is to be carried out by certified personnel only. It should be noted that this also applies to equipment normally considered safe. For example, equipment may only be opened for the installation of cards and accessories if physical contact with live parts and changes in the voltage of live parts can be ruled out.
- Experimental arrays with high-voltage installations must be inspected and approved by the local sector officer (see above) prior to start-up or restart after modifications.
- Any technical modifications to instrumentation are strictly forbidden unless the agreed with the persons responsible (room officers) and the local sector officer.
- Before starting experiments, make sure you have the necessary equipment such as safety goggles, protective gloves and shoes, and report any safety equipment that is lacking to the local sector officer (see above).
- When handling chemicals, gloves, and face and eye protection must be worn.
- Specimen preparation equipment (for grinding and polishing of samples) is strictly to be operated under wet conditions in order to minimise abrasive dust.
- Always wear safety goggles when handling transportable nitrogen dears and generally when pouring liquid nitrogen from one vessel to another. It is forbidden to pour large amounts of liquid nitrogen from one vessel to another in small rooms.
- Appropriate hoods are mandatorily to be used when working with hazardous substances with high vapour pressure or with gas- or dust-like hazardous materials (e.g. with nanoparticles). The front glass of the hood is to be kept closed, and the function is to be continuously checked. Defect hoods are to be clearly labelled as out of service. Activities outside the hood shall be allowed only if adequate protection is guaranteed. Suitable respirators will only be used if the work safety is not clearly guaranteed by other protective measures.
- In view of potential long-term risks induced by nanosize objects, notably to the environment and human health, procedual guidelines available at www.baua.de/de/Themen-von-A-Z/Gefahrstoffe/Nanotechnologie/Links-Beispiele.html are manditorily to be consulted before experiments are carried out which will involve the creation, handling and recycling of nanomaterials.
- Before handling chemicals and solid state materials, inform yourself about any possible dangers and the protective measures to be taken. Always do this as a precaution, even if you believe you are handling harmless substances. Information and safety data sheets for the handling of hazardous materials can be accessed over the local sector officer. Experiments with beryllium-containing alloys are prohibited.
- Storage of chemicals in the laboratory rooms is not permitted; they may only be

stored in small amounts in fire-resistant laboratory cabinets.

- Cylinders and containers for chemicals must be carefully labelled. This is not just to avoid mixing them up. Please bear in mind that these materials must generally be disposed of. Labelling is therefore absolutely necessary.
- When disposing of chemicals, please note that they should not be poured into washbasins or the cooling circuit. In the laboratories, disposal vessels are provided for a range of chemicals. If uncertain, please contact the person responsible (see above).
- In conjunction with paper, oxidants can begin to burn even if highly diluted and after many hours. When wiping up spilled quantities of such substances, take care that there is no fire hazard. Absorbent paper should not be disposed of in wastepaper baskets.
- Oxyhydrogen gas mixtures (hydrogen-oxygen) should not be used.
- Compressed gas cylinders must be secured to the wall by a chain and transported with the instrument protection attached.
- Work involving special safety risks or dangerous working substances should only be undertaken if another person is nearby and able to help you in case of emergency. Keep your work area clean and tidy.
- Any placing, stocking or consumption of comestible goods (meals and drinks) is strictly forbidden in the electron microscopy laboratory rooms.
- Work in ER-C and IMF laboratories is forbidden on Saturdays, Sundays and public holidays and bridging days, during general company holidays and on weekdays outside normal working hours of FZ JÜLICH (Monday to Friday 08.00 – 16.40 hours). Exceptions are only allowed if the OPTRA high-frequency positioning system is used and work is carried out in agreement with a second person who then remains nearby and is able to offer immediate assistance in case of emergency. It is not sufficient for this second person to be somewhere in the building; the person must be in the immediate vicinity and must be informed about his supervisory function and actively exercise it.
- When using stepladders, ensure they are properly positioned to prevent accidents caused by instability.
- Report any safety deficiency you have noticed to the person responsible (see above) or local sector officer (see above).

WHAT TO DO IN CASE OF MALFUNCTIONS

- Turn off the affected installation in the presence of a second person, ideally the person responsible (see above) or the local sector officer (see above).
- Leave the laboratory immediately.
- Report any malfunction to the person responsible (see above) or the local sector officer (see above).

WHAT TO DO IN CASE OF ACCIDENTS – FIRST AID

Notruf 77

- Press the "Not Aus" ("emergency stop") switch.
- Rescue injured persons from the danger zone.
- Give first aid and consult the company doctor: **EMERGENCY NUMBER 77**. Have all injuries attended to, even if the incident seems relatively harmless at first. This is especially important when handling chemicals where the effects of incorporation or contact may only appear much later.
- Report the accident to the Safety Control Centre **EMERGENCY NUMBER 77**.
- Inform the person responsible (see above).

MAINTENANCE AND DISPOSAL

- Keep all equipment in good condition.
- Keep corridors free from supply cables and tubes.
- Secure objects lying around or ideally store them in laboratory cabinets.
- Immediately report any incorrect performance of the installation to the person responsible (see above). Maintenance and upgrading work is to be carried out by authorized staff only.

CONSEQUENCES OF NONCOMPLIANCE

- Health consequences ranging from harmless injuries to serious illnesses and even death.

Put into force *ex officio* by Dr Karsten Tillmann.

Jülich 4 February 2020

INSTRUCTION SHEET No 1871-01-18-OvB-003

OFFICES, OFFICE-LIKE ROOMS AND STORAGE ROOMS

EDITION 4 FEBRUARY 2020

Building 05.2S	Workplace	Person(s) responsible	Phone
Room 2007	TEM FEI Titan 60-300 PICO – operator	Dr Juri Barthel	2418
Room 2008	TEM FEI Titan 60-300 CREWELEY – operator	Dr Andras Kovacs	9276
Room 3000	Floor	Werner Pieper	6700
Room 3001	Office – director ER-C 2 and general manager ER-C	Dr Karsten Tillmann	1438
Room 3002	Office	Dr Martina Luysberg	2417
Room 3003	Office	Dr Juri Barthel	9277
Room 3004	Office	Ms Göcking	4274
Room 3005	Office – director ER- C 1 – storage	Professor Dr Rafal Dunin-Borkowski	9297
Room 3006	Office – director ER-C 1	Professor Dr Rafal Dunin-Borkowski	9297

Building 05.2W	Workplace	Person(s) responsible	Phone
Room 3000	Floor	Werner Pieper	6700
Room 3075	Office	Dr Michael Feuerbacher	2409
Room 3076	Open plan office Northwest	Max Kruth	2418
Room 3077	Office	Dr Andreas Thust	6644
Room 3078	Office	Gabriele Waßenhoven	4073
Room 3079	Office	Werner Pieper	6700
Room 3080	Open plan office Northeast	Werner Pieper	6700
Room 3081	Office	Professor Dr Knut Urban	3153
Room 3082	Office	Dr Lei Jin	2413
Room 3082a	Office	Professor Dr Chunlin Jia	2408
Room 3083	Office – local sector officer ER-C	Werner Pieper	6700
Room 3084	Office	Dr Andras Kovacs	9276
Room 3085	Office	Dr Amir Tavabi	9478
Room 3087	Central copiers, printers, and guillotines	Werner Pieper	6700
Room 3088	Central computers	Werner Pieper	6700
Room 3089	Seminar room	Werner Pieper	6700
Room 3090	Storage room – office supplies	Werner Pieper	6700

Local sector officer	Phone
Werner Pieper	6700

DANGER TO HUMANS AND THE ENVIRONMENT

- Contact with high-voltage parts.
- Exposure to toner particles due to improper handling of toner cartridges.
- Improper use of stepladders, office furniture or paper cutters.

PROTECTIVE MEASURES AND CODES OF CONDUCT

- The instruction manuals and operating instructions of all electric equipment including all auxiliary equipment are to be followed. These can be found in the computer room as printed or electronic documents, e.g. in the form of online manuals.
- You are not allowed to open mechanical or electronic instruments or peripheral equipment, e.g. to carry out fault diagnostics or repairs.
- Unintentional mechanical load on electric equipment, leaking fluids (leaky windows in building 05.2) in the vicinity of electric installations, tripping over electric cables or other comparable incidents can lead to high potential hazards due to damage and interferences that are possibly not directly recognizable. Inform the person responsible (see above) or local sector officer (see above) if necessary and unplug the instrument in question in his presence.
- When using stepladders, ensure they are properly positioned to prevent accidents caused by instability. It is forbidden to use a swivel chair as a substitute for a stepladder.
- Use paper cutters cautiously. Leave them with the cutting blade retracted after use to prevent damage due to the guillotine effect.
- When changing laser printer cartridges, replacements must be handled carefully to prevent toner emissions. Old, nearly empty cartridges are to be wrapped in plastic wrap and immediately disposed of.
- Report any safety deficiency you have noticed to the person responsible (see above) or local sector officer (see above).

WHAT TO DO IN CASE OF MALFUNCTIONS

- Leave the room immediately and inform the person responsible (see above) or the local sector officer (see above).

WHAT TO DO IN CASE OF ACCIDENTS – FIRST AID

Notruf 77

- Rescue injured persons from the danger zone; give first aid and consult the company doctor **EMERGENCY NUMBER 77**.
- Report the accident to the Safety Control Centre **EMERGENCY NUMBER 77**.
- Inform the person responsible (see above).

MAINTENANCE AND DISPOSAL

- Keep computer equipment in good condition at all times.
- Keep corridors free from supply cables and tubes.
- Secure objects lying around or ideally store them in office cabinets.
- Maintenance and upgrading work on electronic equipment, office furniture and fixtures is to be carried out by authorized staff only.

CONSEQUENCES OF NONCOMPLIANCE

- Health consequences ranging from harmless injuries to serious illnesses and even death.

Put into force *ex officio* by Dr Karsten Tillmann

Jülich 4 February 2020

MASSNAHMENKATALOG FÜR RAUMVERANTWORTLICHE UND BEREICHSBEAUFTRAGTE

ZUR ABSTELLUNG VON GEFAHREN IM FALL VON SF_6-LECKAGEN AN DEN HOCHSPANNUNGSTANKS VON ELEKTRONENMIKROSKOPEN

AUSGABE 4. FEBRUAR 2020

JÜLICH Forschungszentrum

Gebäude 05.2S	Arbeitsplatz	Raumverantwortlicher / Stellvertreter	Telephon
Raum 1008a	TEM Zeiss Libra 120	Dr. Johan Buitenhuis / Werner Pieper	3146 / 6700
Raum 2002	FIB FEI Helios NanoLab 400S	Lidia Kibkalo / Max Kruth	3910 / 2418
Raum 2003a	TEM FEI Titan 80-300 TEM	Drs. Andreas Thust / Andras Kovacs / Juri Barthel	6644/9276/2418
Raum 2003b	TEM FEI Titan 80-300 TEM – T.	Drs. A. Thust / A. Kovacs / J. Barthel	6644/9276/2418
Raum 2004a	TEM Hitachi HF 5000	Drs. Knut Müller-C. / N.N.	85237 / -
Raum 2004b	TEM Hitachi HF 5000 – Technik	Drs. Knut Müller-C. / N.N.	85237 / -
Raum 2005	TEM FEI Titan 60-300 PICO	Drs. Juri Barthel / Hongchu Du / Lei Jin	2418/85176/8037
Raum 2006	TEM FEI Titan 60-300 PICO – T.	Drs. Juri Barthel / Hongchu Du / Lei Jin	2418/85176/8037
Raum 2009	TEM FEI Titan 60-300 HOLO – T.	Drs. Yoshie Murooka / Amir Tavabi	9265 / 9478
Raum 2010	TEM FEI Titan 60-300 HOLO	Drs. Yoshie Murooka / Amir Tavabi	9265 / 9478

Gebäude 05.2W	Arbeitsplatz	Raumverantwortlicher / Stellvertreter	Telephon
Raum 1065	SEM TFS Apreo VS	Dr. Beate Förster / N.N.	85112 / -
Raum 1066	SEM JEOL 840A and 7400F	Eva-Maria Würtz / Werner Pieper	6682 / 6700
Raum 1067	TEM JEOL 200 FS – Technik	Dr. Beate Förster / N.N.	85112 / -
Raum 1068	TEM JEOL 200 FS	Dr. Beate Förster / N.N.	85112 / -
Raum 1071	TEM FEI Tecnai F20	Drs. Martina Luysberg / Marc Heggen	2391 / 6700
Raum 1072	TEM FEI Tecnai F20 – Technik	Drs. Martina Luysberg / Marc Heggen	2391 / 6700
Raum 2084	TEM FEI Titan 80-200 CREWELEY	Drs. Andras Kovacs / Roland Schierholz	9276 / 1686
Raum 2087	TEM FEI Titan 80-300 STEM	Drs. Knut Müller-C. / Martina Luysberg	85237 / 2417
Raum 2088	TEM TFS Spectra 300	N.N. / Werner Pieper	- / 6700
Raum 2089	TEM TFS Krios G4	Dr. Julio Ortiz / -	2032 / -
Raum 2090	TEM TFS Talos 200 Arctica	Dr. Julio Ortiz / -	2032 / -
Raum 2091	FIB FEI Helios NanoLab 460 F1	Max Kruth / Lidia Kibkalo	2418 / 3910
Raum 2093c	TEM TFS Talos 120	Dr. Julio Ortiz / -	2032 / -

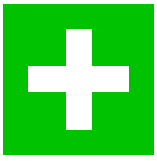
Gemeinsamer Raumbeauftragter	Telephon
Werner Pieper	6700

SZENARIO: DRUCKVERLUST AM SF_6-HOCHSPANNUNGSTANK OHNE GERUCHENTWICKLUNG IM MIKROSKOPRAUM

Nach Feststellung bzw. Meldung einer SF_6-Leckage an den Hochspannungstanks von Elektronenmikroskopen sind innerhalb eines Zeitraums von 28 Minuten bzw. 23 Minuten (Räume 2005 und 2009 bzw. 2002, 2003a, 2004a des Gebäudes 05.2S sowie Räume 2087a-c und 2089a-c bzw. 1066, 1067, 1068, 1071, 1072, 2084, 2090 und 2091 des Gebäudes 05.2W) durch den Geräteverantwortlichen (s.o.) oder den Bereichsbeauftragten (s.o.) folgende Maßnahmen zu ergreifen:

- Möglichen Sauerstoffmangel im Bodenbereich des Mikroskopraums sowie der benachbarten Technikräumen vermittelst eines Haloteck-Handgeräts detektieren. Im Fall einer Leckage innerhalb der Räume 2005 und 2009 des Gebäudes 05.2S sowie der Räume 2087a-c und 2089a-c des Gebäudes 05.2W (mögliches Entweichen von SF_6 durch die Luftspalte der Schwingfundamente) zusätzlich die darunterliegenden Kellerräume auf SF_6-Kontamination überprüfen.
- Im Fall einer Detektion von SF_6 vermittelst der Haloteck-Geräte den mobilen Pumpstands (Raum 2011 des Gebäudes 05.2S) in den betreffenden Raum (Mikroskop-, Technik- und/oder Kelleraum) verbringen und die kontaminierte Luft im Bodenbereich ins Freie abpumpen.
- Für gute Durchlüftung des betreffenden Raums (Öffnen der Türen (Mikroskop- und Technikräume) bzw. Fenster (Kellerräume) und der Außentüren des Gebäudes) sorgen.
- Den Mikroskophersteller umgehend informieren und auf Abstellung des Mangels drängen.
- Messungen mit Haloteck-Handgeräten und Absaugung in halbtägigen Abständen wiederholen bis der Mangel abgestellt bzw. der Hochspannungstank an einen Ort außerhalb des Gebäudes verbracht wurde.

SZENARIO: DRUCKVERLUST AM SF_6-HOCHSPANNUNGSTANK BEI GLEICHZEITIGER GERUCHENTWICKLUNG IM MIKROSKOPRAUM ODER DER REIZUNG DER ATEMWEGE



Notruf 77

Nach Feststellung einer SF_6-Leckage an den Hochspannungstanks von Elektronenmikroskopen sind bei gleichzeitiger Wahrnehmung eines intensiven chemischen Geruchs oder von Atemwegreizungen (Verdacht der Bildung von Zersetzungsprodukten) durch jede Person unverzüglich folgende Maßnahmen zu ergreifen:

- Raum unter Verschluß der Türen unverzüglich verlassen.
- SF_6-Leckage mit dem Verdacht auf die Bildung von Zersetzungsprodukten unter **NOTRUF 77** an die Sicherheitszentrale melden.

- Personen in umliegenden Räumen warnen und das Gebäude gemeinsam auf der windzugewandten Seite verlassen.
- Soweit möglich, den Geräteverantwortlichen (s.o.) oder den Bereichsbeauftragten (s.o.) informieren.

Ex officio in Kraft gesetzt durch Dr. Karsten Tillmann.

Aachen, den 4. Februar 2020