

Institut für Experimentalphysik, Universität Hamburg	Operation directive	Datum: 23.06.15
Work category:	Valid for:	Unterschrift:
Work with Devices generating X-rays	Employees and other persons present on the grounds of the <i>Institut für Experimentalphysik</i>	Dr. M. Tluczykont (radiation safety officer)

DESIGNATION

Facilities for generation of X-rays and stray radiation emitters

Allgemeine Betriebsanweisung für den Umgang mit Röntgenanlagen und Störstrahlern

DANGERS FOR HUMANS AND THE ENVIRONMENT



- The effect of ionizing radiation on human beings can cause deterministic radiation damages (skin burn, organ damage, radiation disease, death) in case of high doses (>1Sv). Small radiation doses can cause stochastic radiation damages (Cancer, genetic damages).
- Device uses high voltage, please refer to the operation directive „Electricity“



PRECAUTIONARY MEASURES AND RULES OF CONDUCT



- The operation instructions of the used device must be observed.
- The X-ray act (*Röntgenverordnung, RöV*) and the presidential decree „*Strahlenschutzverordnung des Präsidenten der Universität Hamburg*“ are the basis for this operating directive.
- Persons working with ionizing radiation must be instructed by the radiation safety officer.
- A technical instruction must be provided by the group leader or the leading experimentalist.
- Protective devices must be inspected by eye before the operation of a facility or a device.
- Structural measures or modifications of facilities and devices are not allowed.
- Positional changes within the experiment as well as exchanging devices between experiments must can only be considered after consultation with the radiation safety officer.
- Radiation leakage through windows must be shielded.
- X-ray facilities must undergo an official technical test in 5-year intervals. Operation permits are based on an operating time of <300h/a (→ only operate when necessary!)
- Operation has to be documented in a logbook (*Betriebsbuch*).
- In control-areas (radiation dose in excess of 6mSv but less than 20mSv per year), official personal dosimetric monitoring must be carried out. In case of lower expected radiation doses per year official personal dosimetric monitoring can be requested as well.

RULES OF CONDUCT IN CASE OF MALFUNCTIONS



- In case of malfunction of the experiment, stop experiment and activate **emergency-stop: NOT-AUS**.
- Inform co-workers and group leader.
- In case of malfunction of the X-ray device, **inform the radiation safety officer**.
- In case of starting fires: if possible without endangering oneself, fight the fire. Every fire must be reported to the technical emergency service, *Technischer Notdienst*, (5555).
- In case of serious emergencies: **emergency call 2500**.

RULES OF CONDUCT IN CASE OF ACCIDENTS: EMERGENCY CALL 2500



- Evacuate persons from danger zone without endangering oneself.
- Contact the technical emergency service: **emergency call 2500**.
- Small injuries can be treated using available medical kits, apply first aid.
- Consult trained first aid staff (*Ersthelfer*), and radiation safety officer.

INSTANDHALTUNG

- Before activation of any device, check safety mechanisms of device !
- Maintenance and repair must be done exclusively by trained specialist staff !
- Facilities must undergo a technical inspection in 5-year intervals.

FOLGEN DER NICHTBEACHTUNG

- Health issues: injuries and sickness
- Contract-related consequences: „*Abmahnung, Verweis*“