



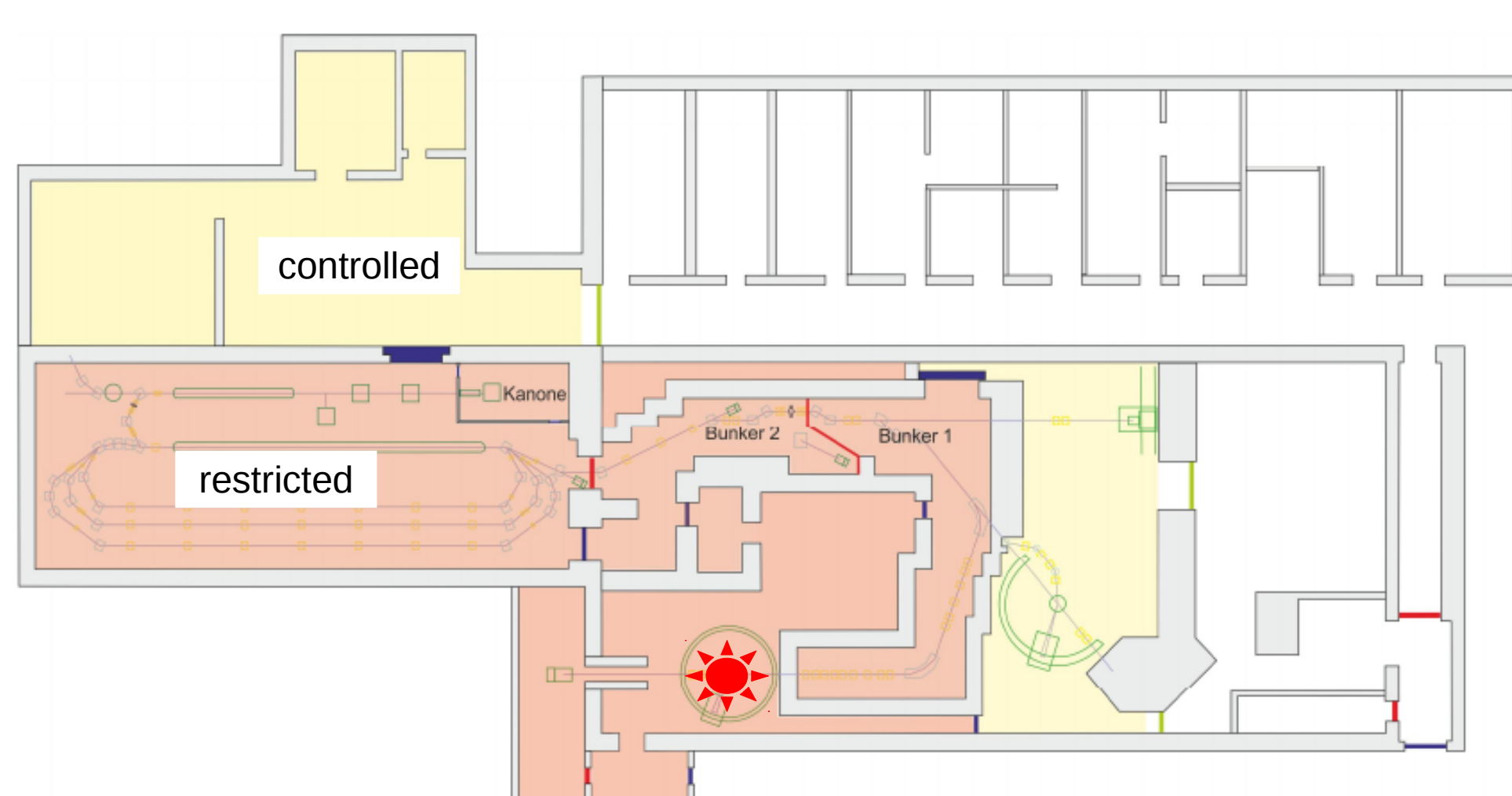
Commissioning of a New Dose Rate Monitoring System at the S-DALINAC*

Jonny Birkhan[†], Michaela Arnold, Uwe Bonnes, Jens Conrad, Manfred Hess, Louise Marc, Norbert Pietralla, Lennart Stobbe, Peter von Neumann-Cosel

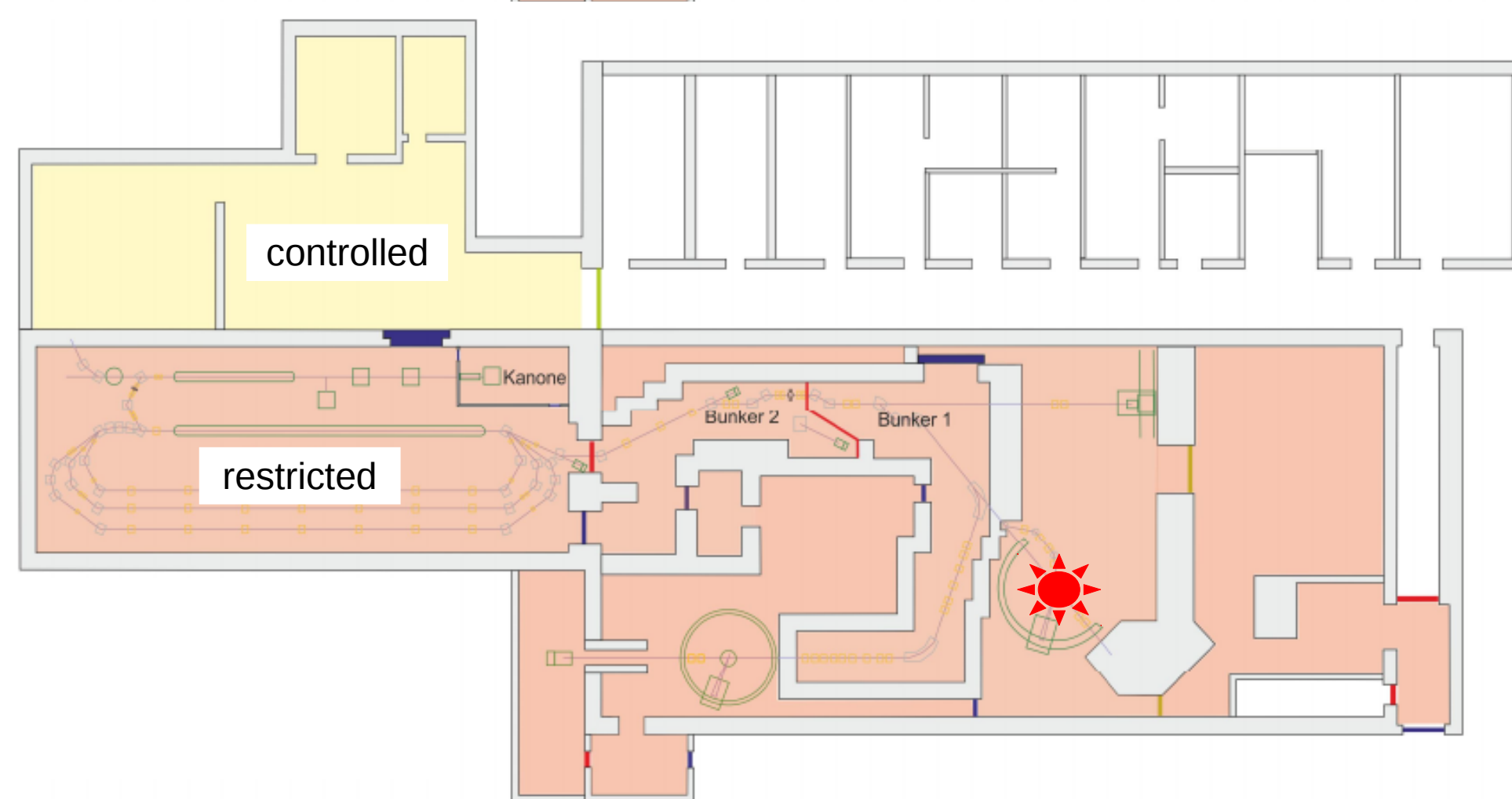
Arrangement of the Radiation Protection Areas at the S-DALINAC

- Protection level depends on operational status of the facility

Beam at the Lintott spectrometer



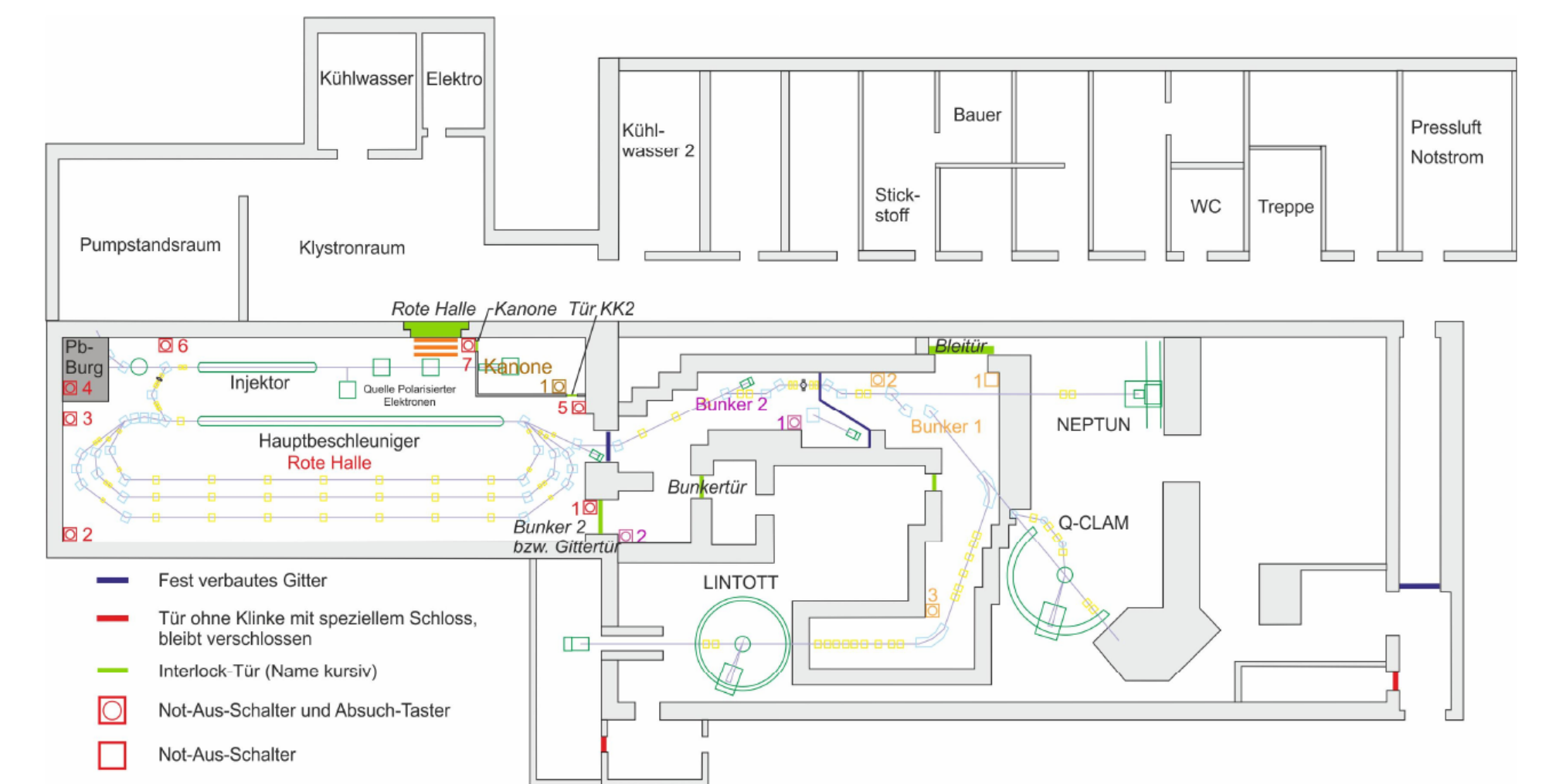
Beam at the QClam spectrometer



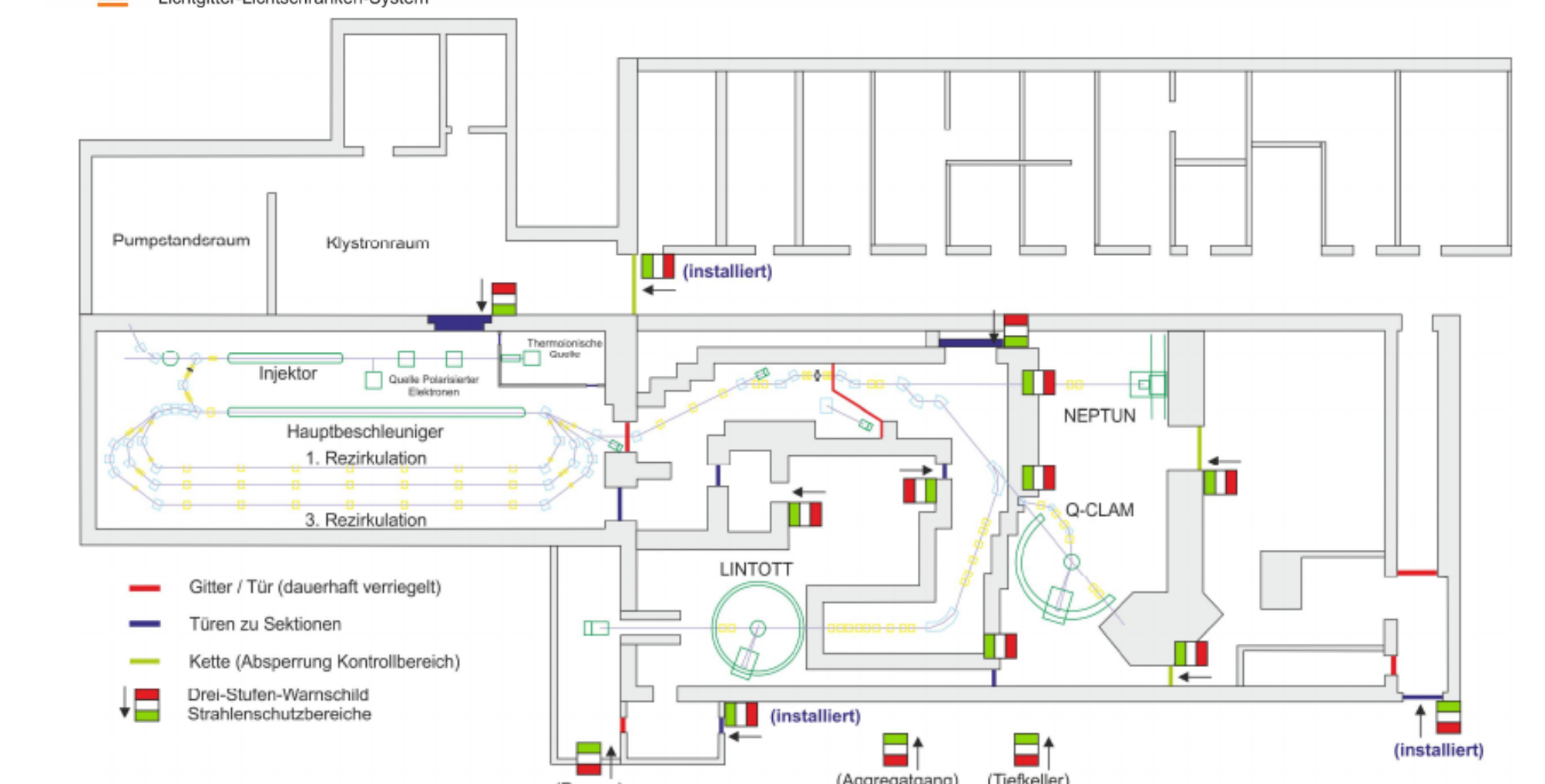
Personal Interlock System

- Stops operation if a radiation protection area is entered
- Scanning of these areas for workers before operation

Safety scanning procedure



Declaration of areas by illuminated panels



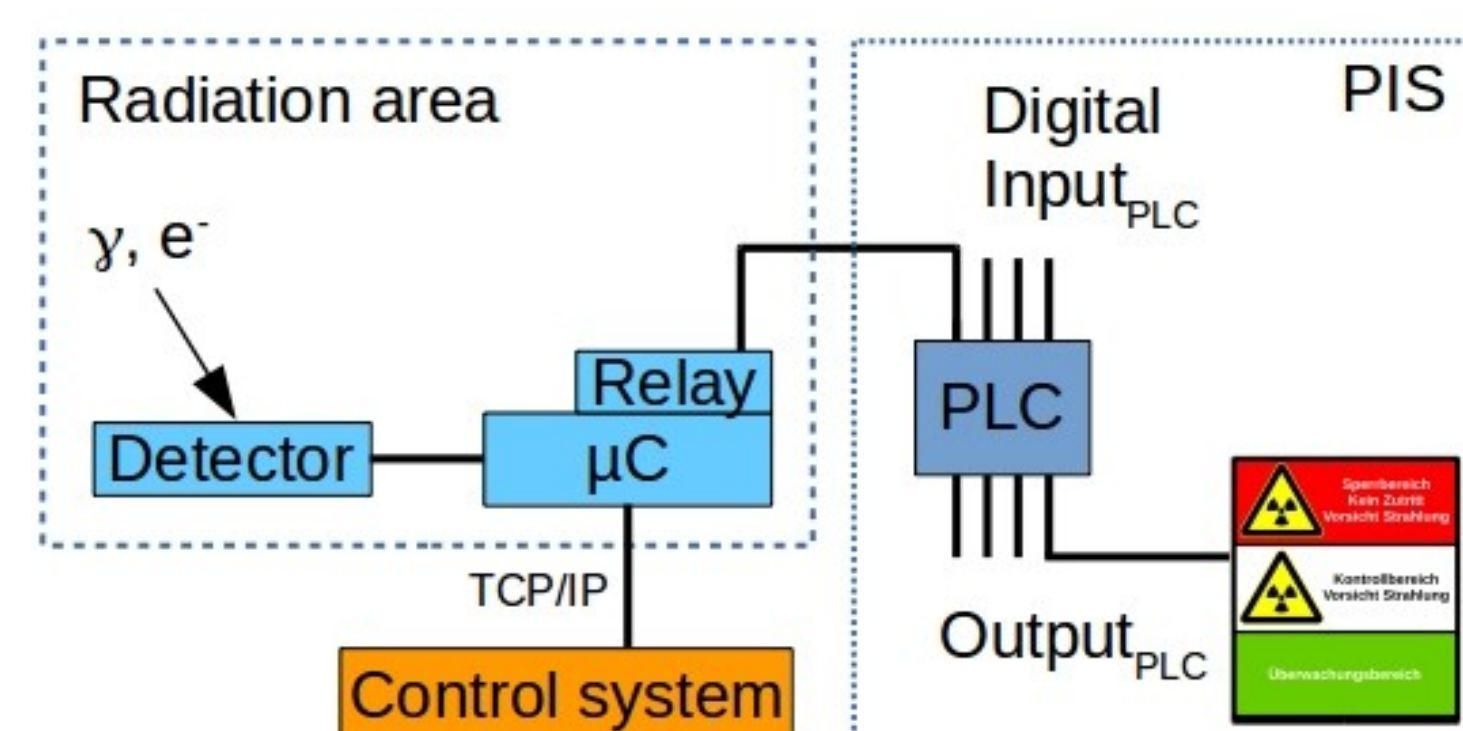
New Online Dose Rate Monitoring

- New monitoring system performs online measurements of dose rates
- It switches the status display of the protection panels

A radiation detector is read out by a microcontroller.

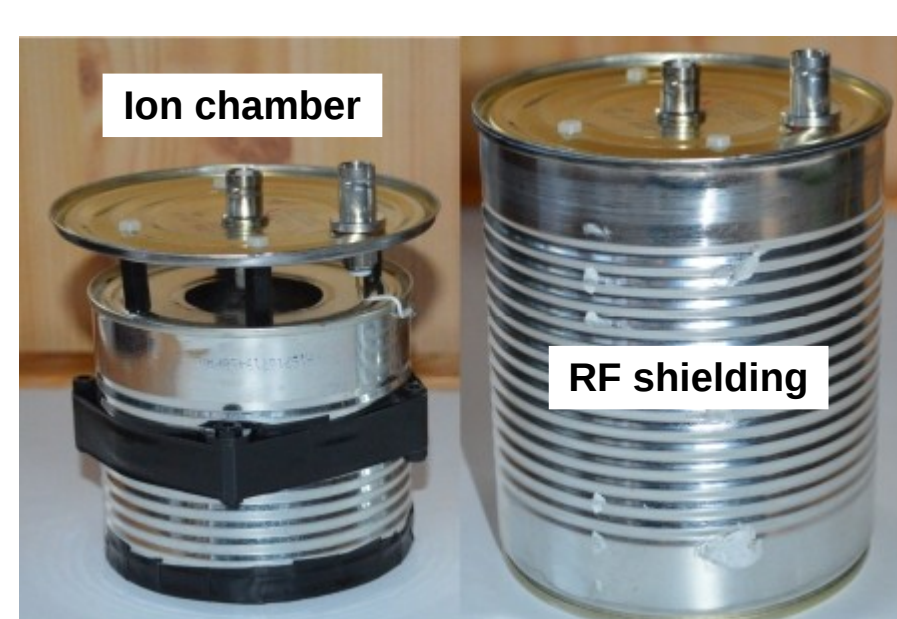
A mounted relay sends a signal to the controller of the personal interlock system.

The Programmable Logic Controller (PLC) switches the status of the panel.

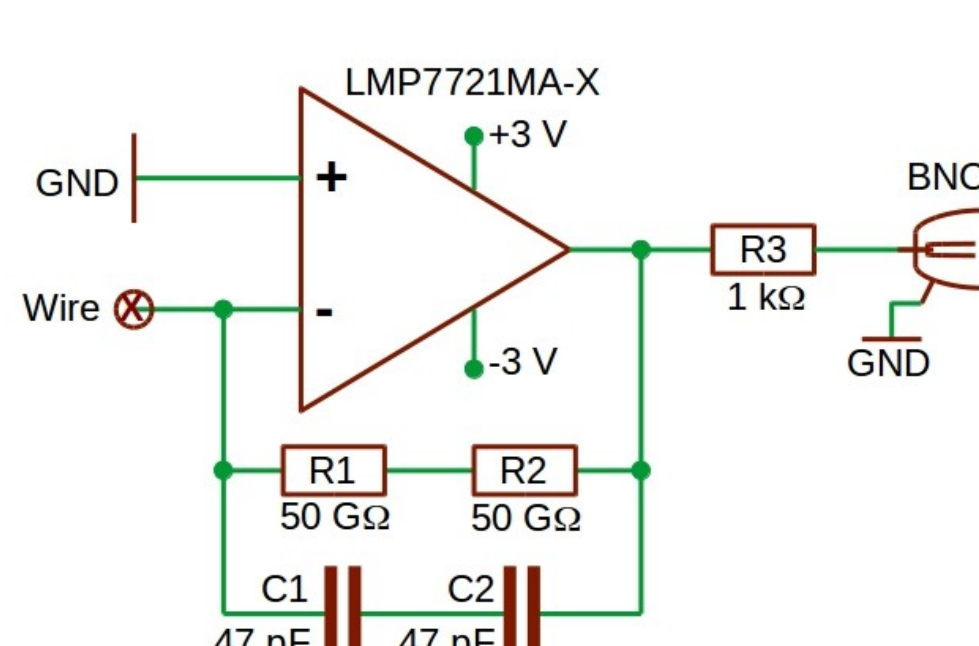


- Homemade ion chambers and PIN-diode array sensors are used as detectors

Ion chamber made from cans



Charge-sensitive amplifier for ion chamber



PIN-diode array detector



Test and Calibration of Detectors

- Measurements performed in restricted area during accelerator operation
- Measurements performed with radioactive sources

