

THE SSRF RADIATION SAFETY INTERLOCK SYSTEM AND ITS APPLICATIONS

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Abstract

Radiation Safety Interlock System (RSIS) for the Shanghai Synchrotron Radiation Facility (SSRF) has been built and operated more than one year, it is composed of two subsystems, the Access Control System (ACS) and the Radiation Containment System (RCS). The ACS prevents personnel from being exposed to the extremely high radiation inside the SSRF shielding tunnel during machine operation. The RCS prevents personnel from being exposed to the high radiation outside a shielding tunnel during either normal or abnormal operation. The implementation of the ACS is based on the Programmable Logic Controllers, key transfer interlocking systems and ID Card System. The RSIS is based on fail-safe, redundancy, multiplicity. Any violation of the RSIS will result in the inhibiting of redundant permission to the associated interlock systems, and cease the injection process and eliminate the entire stored electron beam in the SSRF. This paper describes the system design, the logic, and some experience of using RSIS systems at SSRF.

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