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## New Radiation Safety Interlock System for the SPring-8 Accelerator Complex

Radiation safety interlock system for the SPring-8 accelerators, which protects workers from radiation hazard induced by electron beams and synchrotron radiation, has been operating over a decade. In the past 10 years, the radiation controlled area in SPring-8 expanded to cover five accelerator/beam-transport areas including two storage rings: SPring-8 storage ring and NewSUBARU storage ring. Moreover, the injection beam transportation can be frequently changed between the two storage rings. The extended radiation safety interlock system had the complicated safety logic to handle such a switching operation and wider accelerator/beam-transport areas because the system was closely related to the combination of accelerator areas in operation: "Operation MODE". In order to cover an additional accelerator/beam-transport area efficiently in the future, the functional independence of each accelerator/beam-transport area has to be well established for easy integration and simple maintenance. This circumstance provoked extensive discussions on the design of new radiation safety interlock system to satisfy the requirements and smooth migration from the old system to the new one. The construction of the new radiation safety interlock system was finalized in September 2010. And the system started the user operation in October 2010. We will report the design of the new radiation safety interlock system and the process of the system construction.

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