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Personnel safety system for the beamlines at the Advanced Photon Source

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The Personnel Safety System (PSS) for the front ends and beamlines at the Advanced Photon Source was designed and is being implemented by the Experimental Facilities Division. It is a high reliability, fail-safe, redundant, engineered safety system that provides personnel access control to prevent inadvertent entry into experimental stations when hazardous radiation conditions exist and warns personnel of changes in safe operating conditions inside these stations. Single fault tolerant access control is provided by two independent interlock "chains" implemented via programmable logic controllers (PLCs). Reduction of common mode failures is accomplished by different hardware and software platforms for the two chains. The system design is presented.

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