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## Charge integrating silicon detectors for SwissFEL.

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1D and 2D detectors based on charge integrating readout with automatic gain switching logic are being developed at PSI.

The systems are designed to provide a dynamic range of  $10^4$  12keV photons, single photon resolution down to a photon energy of a few keV and a noise lower than 200 e.n.c..

The GOTTHARD 1D microstrip detector module, which is under commissioning, is composed of a printed circuit board, 10 readout chips for a total of 1280 channels at 50um pitch. A complete readout chain, from the high speed ADCs to a Gbit link for the data download to the control PC, is also integrated on the board. Frame rates up to 60kHz (continuous) and 1MHz (burst) are achievable with the system.

The JUNGFRAU 2D detector, which is expected to be deployed in 2015, will have a 75 um pixel pitch and a modular construction similar to the (PSI developed) EIGER photon counting detector.

Results from the characterization measurements of the GOTTHARD system and the design specifications of the JUNGFRAU detector will be reported.

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