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**Development Process of CMOS Readout ASICs for
Single-Photon Counting X-Ray Detectors**

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Abstract

The development process of CMOS readout ASICs for single-photon counting hybrid-pixel x-ray detectors is presented and the respective technologies are explained. Instant retrigger technology is introduced in order to understand the DECTRIS product portfolio and its continuous evolution cycle. The complete DECTRIS product development process is explained and the involved teams and disciplines are specified. The CMOS readout ASIC design as a vital part of the detector development is illustrated using the PILATUS3 ASIC as a showcase. System integration and production viewpoints are mentioned in order to complete the development process and to get a good feeling for leading-edge detector technology.