Contribution ID: **1042** Type: **Invited talk**

Detector Development at PSI - Past, Present, and Future

Thursday 29 August 2024 11:00 (20 minutes)

The photon science detector group at PSI has more than 20 years of experience in the development of hybrid pixel and microstrip detectors. Initially the focus was on single photon counting detectors and then moved to dynamic gain switching detectors for the upcoming XFELs. Our current developments are driven by Athos the low energy branch of SwissFEL and the upgrade to SLS2 of the SLS. In order to measure low photon energies down to 250eV using our hybrid detectors we work together with FBK on the development of sensors with a thin entrance window and gain in the sensor (iLGADs). These sensors can be used for detectors with single photon counting and charge integrating architectures. Apart detectors for Athos a main goal for the sensor development is also to make single photon counting down to 300-400eV possible. To address the higher expected photon rates at SLS2 we started to develop Matterhorn a new single photon counting detector with the goal to achieve a photon count rate of 20M counts/s per pixel at 80% efficiency which is comparable to today's charge integrating detectors like Jungfrau.
In my presentation I will give an overview over our current and future developments.

I plan to submit also conference proceedings

No

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