



Contribution ID: 179

Type: Poster

### **P1.49: TEMPUS –A Timepix4 readout system for photon science experiments**

*Monday, 26 June 2023 15:39 (1 minute)*

A readout system for the Timepix4 pixel ASIC, TEMPUS, is being developed for photon science experiments such as time-resolved X-ray scattering. In timestamping mode, this system will offer nanosecond timing when detecting X-rays with a silicon sensor, and will have an event rate capability around 1 Mhit/mm<sup>2</sup>/s. When working in frame mode, higher frame rates than currently-available photon-counting detectors will be achievable (40kfps). To make effective use of Timepix4, high-data-rate board designs and firmware have been developed. So far, a single-chip system with a silicon sensor has been built and images have been obtained. In the longer term, multi-chip modules are under development, in order to build multi-megapixel systems with minimal gaps between sensors.

**Primary authors:** Dr CORREA, Jonathan; Dr IGNATENKO, Alexandr; PENNICARD, David; LANGE, Sabine; FRIDMAN, Sergei (DESY); SMOLJANIN, Sergej (X-Spectrum); SCHMEHR, Julian; LANGE, Jörn (X-Spectrum GmbH); BECKMANN, Andreas (X-Spectrum); KLINK, Hagen (X-Spectrum); GRAAFSMA, heinz (DESY)

**Presenter:** PENNICARD, David

**Session Classification:** Poster (incl. coffee)