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

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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.

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