## An ultra-fast and wide-spectrum linear array detector for high repetition rate and pulsed experiments

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The photon science research at accelerators is influenced radically by the developments of sensor and readout technologies for imaging. It covers a wide range of applications fields both beam diagnostic and user systems, tomography and spectroscopy, etc. The repetition rate of commercially available linear array detectors is a limitation factor for the emerging synchrotron applications. To overcome these limitations, KALYPSO (Karl-sruhe Linear arraY detector for MHz rePetition rate SpectrOscopy), an ultra-fast and wide-field of view linear array detector operating at several Mfps, has been developed. A silicon micro-strip sensor is connected to the cutting-edge and custom designed front end ASICs to achieve unprecedented frame rate in continuous readout mode. The system is optimized for near infrared, visible and near ultraviolet spectra regions. The third generation of KALYPSO will be presented. It consists of a linear array sensor with 1024 pixels, operating over 1 Mfps. The detector is currently employed in synchrotron facilities for beam diagnostics, but also has attractive applications for user beam monitor and laser characterizations.

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