

Ultra-fast infrared detector for astronomy

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- The multi-messenger astronomy, started in 2017, needs for longitudinal (temporal) more than transverse (image) detectors for telescopes in all the electromagnetic range to discover fast and slow transients synchronized with the gravitational waves.
- Experience done to detect the pulsed infrared synchrotron light in e⁺/e⁻ circular accelerator has demonstrated the feasibility to acquire mid-IR signals with rise time up to ~1 ns by single pixel HgCdTe semiconductor at room temperature.
- Design of an infrared detector for ground-based telescopes has been partially funded by INFN and it is in progress. The previous detector has been modified and upgraded for the astronomy to be able to record from ultra-fast to very slow transients and to acquire fainter and noisier signals. In phase 1, FAIRTEL will have 1 signal pixel and 1 dark pixel, in phase 2, it will have 7+12 pixels.



board width 70mm=2755.9mils

