Pulsed upconversion imaging of mid-infrared supercontinuum light using an electronically synchronized pump laser

In this paper, a versatile method for synchronized imaging upconversion in the mid-IR wavelength range is presented. A 1064 nm master oscillator power amplifier source pump laser is electronically adjusted in pulse duration and repetition rate to match the output from a 40 kHz, 1.6 ns pulse mid-IR supercontinuum light source followed by upconversion to the near-infrared captured by a sensitive CCD camera. The systems noise is characterized, and we present a simple algorithm for correcting for the image distortion caused by the use of off-axis parabolic mirrors.

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