We demonstrate a new approach to mid-infrared dual-comb spectroscopy. It opens up new opportunities for accurate real-time spectroscopic diagnostics and it significantly simplifies the technique of dual-comb spectroscopy. Two mid-infrared frequency combs of slightly different repetition frequencies and moderate, but rapidly tunable, spectral span are generated in the 2800-3200 cm\(^{-1}\) region. The generators rely on electro-optic modulators, nonlinear fibers for spectral broadening and difference frequency generation and do not involve mode-locked lasers. Flat-top frequency combs span up to 10 cm\(^{-1}\) with a comb line spacing of 100 MHz (3 \(\times\) 10\(^{-3}\) cm\(^{-1}\)). The performance of the spectrometer without any phase-lock electronics or correction scheme is illustrated with spectra showing resolved comb lines and Doppler-limited spectra of methane. High precision on the spectroscopic parameter (line positions and intensities) determination is demonstrated for spectra measured on a millisecond time scale and it is validated with comparison with literature data.

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