

## HIGH-RESOLUTION MICROSECOND-TIME-RESOLVED DUAL-COMB SPECTROSCOPY OF TRANSIENT INTERMEDIATES

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We demonstrated high-resolution microsecond-time-resolved dual-comb spectroscopy of an important short-lived molecule, the simplest Criegee intermediate ( $\text{CH}_2\text{OO}$ ). A dual-comb spectrometer with central wavelength near  $8\ \mu\text{m}$  was built by means of single-pass difference frequency generation between a near-infrared dual-comb source and a continuous-wave Tm-doped laser in an OP-GaP crystal<sup>a</sup>. By coupling the  $8\text{-}\mu\text{m}$  dual-comb source into a multipass cell, the time-dependent absorption signals of  $\text{CH}_2\text{OO}$  and its reaction product (formaldehyde) can be simultaneously obtained upon 248-nm photolysis of the flowing mixtures of  $\text{CH}_2\text{I}_2/\text{O}_2$ . Furthermore, the pressure broadened spectra of  $\text{CH}_2\text{OO}$  were measured by employing spectrally interleaved dual-comb spectroscopy to derive the collisional broadening coefficient.

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<sup>a</sup>Ref: Opt. Lett., 45, 6791 (2020)