MID-INFRARED FREQUENCY COMB SPECTROSCOPY USING A VIRTUALLY IMAGED PHASED ARRAY

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Here we present a new mid-infrared frequency comb system for rapid spectral acquisition using a virtually imaged phased array (VIPA) spectrometer.[a] A difference-frequency generation comb, tuneable from 4.4 μm to 4.7 μm, was used to interrogate a single-pass absorption cell containing either N_2O or CO dilute in either N_2 or air. Precision molecular spectroscopy capabilities at timescales of less than 1 ms will be presented, and progress toward cavity-enhanced and time-resolved comb spectroscopies[b] will be discussed.

[a] L. Nugent-Glandorf et al., *Opt. Lett.* **37,** 3285 (2012)
[b] A.J. Fleisher et. al., *J. Phys. Chem. Lett.* **5,** 2241 (2014)