iDFG for Spectral Densification of Mid-IR Microcombs


Scientific Achievement
- We introduce a new technique for the generation of integrable mid-IR frequency combs: interleaved difference-frequency generation (iDFG).

Significance and Impact
- The new iDFG method for narrow line spacing mid-IR comb generation can be integrated and used in methane emission measurement and chemical threat detection.

Technical Details
- Near-IR soliton used for both lightwave and microwave oscillators
- Soliton and electro-optical combs together with PPLN can be integrated, enabling compact comb modules and mass production
- Agile control of the line spacing in mid-IR