



Novel single frequency tuneable mid-IR laser source

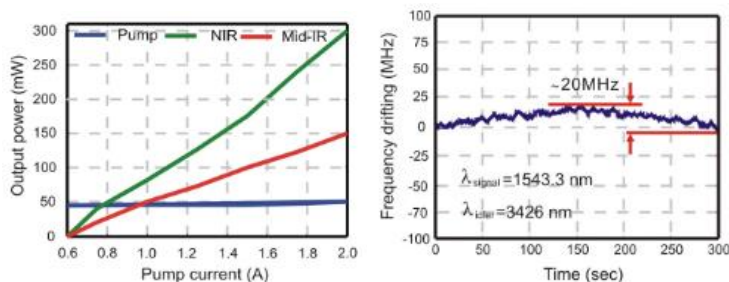
## Single frequency tuneable mid-IR laser source for spectroscopy applications

A single frequency, narrow linewidth, tuneable mid-IR laser source based on an OPO (optical parametric oscillator) mixer for spectroscopy applications has been developed.

### Technical description

The PPLN (periodically poled lithium niobate)-OPO (optical parametric oscillator) based mixer is a powerful tool for broadband tuneable mid-IR laser light generation. HCP has developed a compact, single frequency, narrow linewidth tuneable mid-IR laser for spectroscopy applications. The key features are:

- MIR output power >100 mW
- Operates between 2.8 to 4.6  $\mu\text{m}$
- Single-frequency mod hop free tuning
- Dimensions  $\sim 192 \times 168 \times 50 \text{ mm}^3$
- Stability, output power, and tuning behaviour characterized at VSL



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### Advantages of OPO Mixer based mid-IR tuneable laser

- High mid-IR output power
- Broad wavelength tuneability
- Stabilized Single Frequency
- Compact design

### Economic significance

The PPLN-OPO mixer based mid-IR laser can be integrated into CDRS (cavity ring-down spectroscopy), PAS (photo-acoustic spectroscopy) and DAS (direct absorption spectroscopy) systems, with potential applications in, for example, gas sensing, spectroscopy, and medicine.

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