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SHAPING THE LIGHT

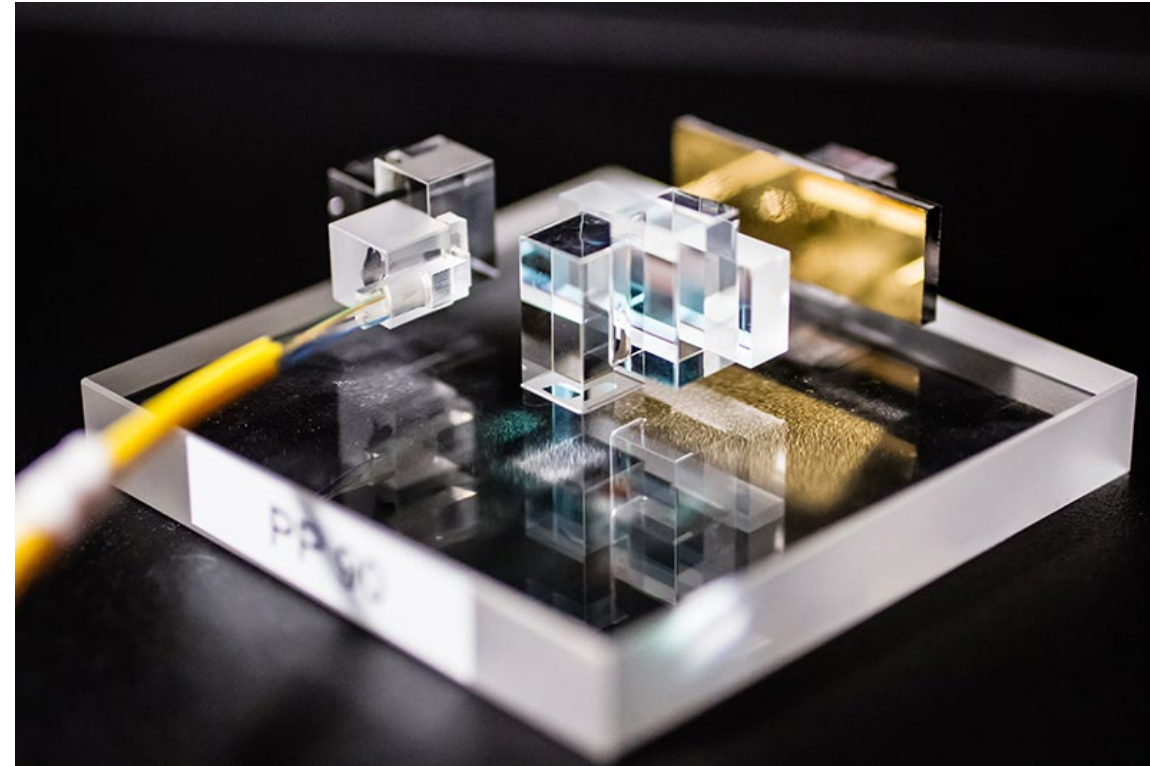
Beam Combining for High-Power Mid-IR sources

EPIC online technology meeting on Mid-IR
Photonics

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A few words about Cailabs

We develop, manufacture & sell innovative optical components

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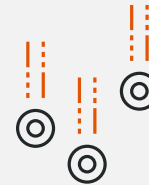
Unique technology (MPLC)
and **expertise** in beam shaping



20+
patent families



50+ employees
(**20** PhDs)



16.6 M€
raised

Stories:



What do we do?

MPLC enables combination of multiple low-power sources

Multi-Plane Light Conversion = passive, flexible beam shaping & multiplexing technology.

Can be used for passive, incoherent beam combination:

- Transforms N single-mode input beams into a **homogenous, power xN output beam**
- **Achieves the optimal output quality (= lowest M^2)** by choosing how each input is converted (choosing the output mode)



→ Efficient beam combiner with optimal beam quality

What can we offer for mid-IR photonics?

Cailabs offers portable high-power mid-IR sources

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Many applications require portable, high-power sources at 3-10 μm range

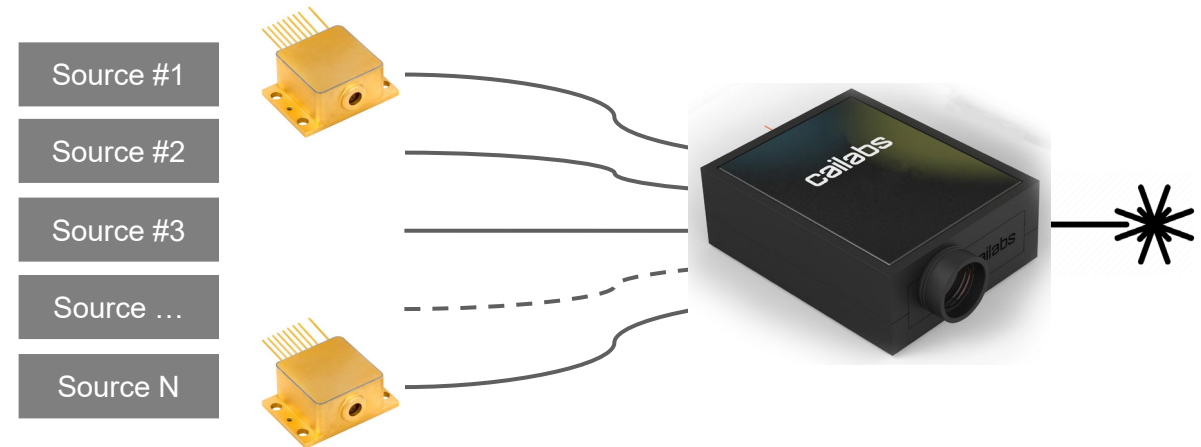
- Counter-measures, free-space communications, gas sensing, organic material processing, etc.

The most promising sources are Quantum Cascade Lasers:

- Very portable
- Very good beam quality
- Large wavelength range available

... But they have limited output power < 2W!

Cailabs offers a compact, high-power source based on QCL combining with good beam quality!



Numbers of input	1 to 10
Wavelength	2.5 to 10 μm
M²	< 3
Insertion loss	< 2 dB
Power output	5 to 16W

What are we looking for?

Cailabs looks for new challenges, new partners and news suppliers

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We are looking for new applications:

- What **new possibilities** do these high-power sources offer?

We are looking for partners:

- **Labs** who wish to look for **novel applications**
- **Integrators** who need higher power sources at MIR wavelengths

We are looking for new suppliers:

- Manufacturers of **optics in MIR compatible materials**
 - Micro-lens arrays
 - Aspheric lenses
 - Dichroic components
- Providers of **optical coatings at MIR wavelengths**



Thank you for your attention!

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