



Multi-Wavelength Mode-Locked Laser

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WARF: P07171US

Inventors: Scott Sanders

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a mode-locked laser capable of generating multiple, discrete beams of light with different wavelengths from a single cavity.

Overview

Many laser applications require multiple, simultaneous laser beams, each with a specific wavelength. But using multiple lasers and associated optical components increases the cost and size of the systems needed for such applications.

The Invention

A UW-Madison researcher has developed a mode-locked laser capable of generating multiple, discrete beams of light with different wavelengths from a single cavity. He has also developed a method of tagging the different wavelengths so the multiplexed beam can be measured by a single detector, which produces an output signal for each of the composite wavelengths.

In this device, multiple function generators are attached to a single laser. Each frequency provided by the function generators creates a different wavelength within the laser. The different wavelengths are then encoded by a single detector for analysis.

Applications

- Applications such as the breath analyzer described in WARF reference number P05416US

Key Benefits

- Simplifies applications requiring multiple wavelengths of light; multiple wavelengths can be measured separately without the need for isolated optical paths or additional optical components
- Reducing the number of lasers reduces size and cost, and simplifies controls
- Allows precise tuning of output laser beams
- Capable of stable operation at specified wavelengths
- Accommodates a range of wavelengths
- Laser cavity can be extremely short, with a concomitant rapid response time.
- Can work with typical, currently available lasers
- Provides a more compact, rugged and inexpensive gaseous analysis and detection system

Additional Information

For More Information About the Inventors

- [Scott Sanders](#)

Related Technologies

- [For potential applications for this new laser, see WARF reference number P05416US.](#)

Tech Fields

- [Analytical Instrumentation, Methods & Materials : Lasers](#)

For current licensing status, please contact Michael Carey at mcarey@warf.org or 608-960-9867