



## Multi-Wavelength Mode-Locked Laser

**INVENTORS • Scott Sanders**

**WARF: P07171US**

[View U.S. Patent No. 7,613,214 in PDF format.](#)

**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

### THE WARF ADVANTAGE

Since its founding in 1925 as the patenting and licensing organization for the University of Wisconsin-Madison, WARF has been working with business and industry to transform university research into products that benefit society. WARF intellectual property managers and licensing staff members are leaders in the field of university-based technology transfer. They are familiar with the intricacies of patenting, have worked with researchers in relevant disciplines, understand industries and markets, and have negotiated innovative licensing strategies to meet the individual needs of business clients.



- 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

### Related Technologies

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

### Tech Fields

Analytical Instrumentation - Lasers

## CONTACT INFORMATION

For current licensing status, please contact Emily Bauer at [emily@warf.org](mailto:emily@warf.org) or 608-960-9842.

