

# Real-Time Fluorescence Lifetime Tracking

Tech ID: 24902 / UC Case 2015-065-0

## ABSTRACT

Researchers at the University of California, Davis have developed a novel technique for continuous acquisition, processing, and display of fluorescence lifetimes. This technique allows for rapid and non-invasive real-time tissue diagnosis through a single hand-held or biopsy fiber-optic probe.

#### **FULL DESCRIPTION**

Conventional imaging techniques such as magnetic resonance imaging (MRI) and computed tomography (CT) provide surgeons with a great deal of information about a tumor's anatomy but cannot distinguish between cancerous and non-cancerous cells. Time-resolved fluorescence spectroscopy (TRFS) has shown promise in the imaging of biopsies of brain tumor, oral carcinoma, and atherosclerosis but currently requires a minimum of several seconds (and up to a few minutes) of off-line fluorescence decay analysis due to the large number of data points collected. While such an approach show-cases the potential of TRFS, it also presents a hurdle which prevents TRFS from being used as a real-time tissue diagnostic tool.

Researchers at the University of California, Davis have developed a novel technique for continuous acquisition, processing, and display of fluorescence lifetimes. This technique allows for rapid and non-invasive real-time tissue diagnosis through a single hand held or biopsy fiber-optic probe. TRFS has been found to be less sensitive to the presence of endogenous absorbers (such as blood) or changes in light excitation collection.

### **APPLICATIONS**

- ► Tissue characterization
- Diagnosis in: Ophthalmology, cardiology, and oncology

#### **FEATURES/BENEFITS**

- Real-time analysis
- Rapid and non-invasive real-time tissue diagnosis
- Continuous acquisition, processing, and display
- Single hand held or biopsy fiber-optic probe
- Less sensitive to the presence of endogenous absorbers

#### **PATENT STATUS**

Country	Туре	Number	Dated	Case
United States Of America	Issued Patent	10,422,749	09/24/2019	2015-065
Patent Cooperation Treaty	Published Application	2016/118925	07/28/2016	2015-065

#### CONTACT

Michael M. Mueller mmmueller@ucdavis.edu tel: .



#### INVENTORS

- Bec, Julien
- Ma, Dinglong
- Marcu, Laura
- Yankelevich, Diego
- R.

#### OTHER INFORMATION

#### **CATEGORIZED AS**

Optics and

#### **Photonics**

- All Optics and
- Photonics
- Biotechnology
  - ► Health
- Imaging
  - Medical
  - Software
- Research Tools
  - Other
- Sensors &

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Instrumentation
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▶ Other
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**RELATED CASES** 2015-065-0

## ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ Fabrication Method for Side Viewing Miniature Optical Elements with Free-Form Surface Geometry
- Motor Drive Unit for Combined Optical Coherence Tomography and Fluorescence Lifetime Imaging of Intraluminal Structures
- Broadband Optical Rotary Junction with High Return Loss for Analysis of Plaques

University of California, Davis	Tel:	$\odot$ 2015 - 2019, The Regents of the	ne University of
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