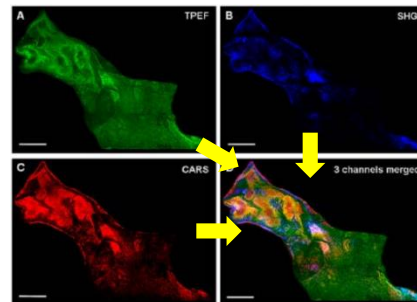


Two-beams single fiber-end source for stimulated Raman and nonlinear microscopy

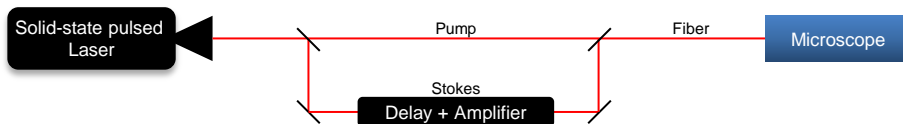


Technology

The laser is made of a **single source** and is designed to induce a 4-wave mixing effect by the spectral focusing technique, to make Raman analysis be **biocompatible** through the Stimulated Raman microscopy. It allows the **vibration frequency of interest to be modified very quickly**, while conserving the efficiency.



Stimulated Raman (CARS) + Two-Photon-Excited Fluorescence (TPEF) + Second Harmonic Generation (SHG) for atherosclerotic plates detection (R.S. Lim et al., J. Lip. Res., 51, 1729-1737, 2010)



Benefits

- Only **one source** instead of two
 - Cheap
 - Small
- Easy to tune** :
 - No need for superposition settings (user friendly)
 - Vibration frequency can be modified very quickly
- Embeddable : it fits with **mainstream microscopes** (fiber laser)
 - no modification of the seed source
 - works with widespread Ti:Sa laser sources
- Automatable
- Works with Stimulated Raman imaging and Nonlinear imaging (fluorescence, second harmonic)
- Primary laser beam stays available

Applications

Every **Stimulated Raman** and **Nonlinear imaging** applications.

- Health
 - Cardiology : prevention of stroke/thrombosis by early detection atherosclerotic plates
 - Oncology : **no-sampling in-vivo biopsy**
 - Targeted imaging : polymeric or metallic nanoparticles monitoring in drug delivery and photodynamic or thermal therapies
 - Diet impact on tumors, atherosclerosis, muscles and neurons degeneration
- Cosmetic
 - Cream distribution through the skin
- Security
 - Remote explosive detection

Keywords

- Raman
- CARS / SRS
- Optical Fiber technology
- Picosecond and Femtosecond Pulsed source
- Nonlinear Microscopy

Intellectual Property

Patent pending

Development Status

A prototype is about to be characterized

Partnership

Co investor
Patent licensing

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