



picoEmerald - A Reference List

Imaging and Spectroscopy with a
Tunable Two-Color-Source

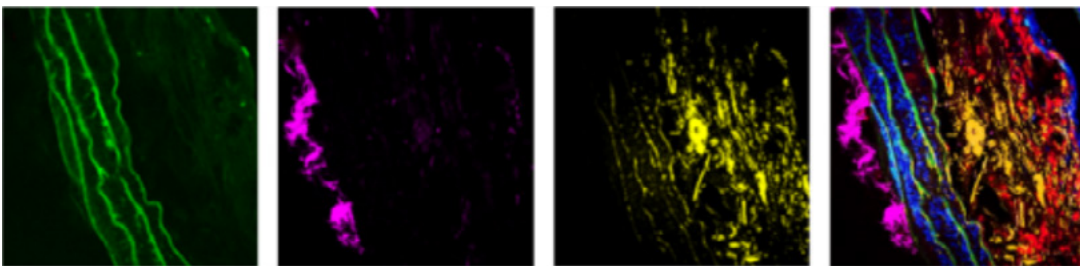


Image Courtesy: Sang-Won Lee & Joo Hyun Park.
Multimodal nonlinear microscopic images incl. TPEF, SHG, CARS and merged image.



APE's picoEmerald - A Reference List

Introduction

APE's picoEmerald is an fully automated two-color laser source. It has been specifically designed to meet the requirements of CARS, SRS, multimodal imaging, SHG/multiphoton fluorescence, and similar methods. The platform is specially designed for Raman-based microscopy and spectroscopy techniques that allow samples to be investigated without labeling. These techniques are based on the intrinsic vibrational contrast between various molecules and their differentiating atom bonds. The narrow bandwidth of picosecond pulses emitted by picoEmerald, offer the ideal balance between high spectral resolution and high intensity low noise signals.

The system comes as an one box turn-key device with spectrometer, electric optical modulator (EOM) as well as sensors for temporal and spatial overlap.

Beside the Raman based applications, this light source also proves it value in Quantum photonics research. For example with Quantum Dots, the nanocrystals can be precisely excited with the narrowband pulses, especially when combined with a spectral slicing unit (pulseSlicer) also available by APE. Such a setup provides optimal pulses for ultra-narrow bandwidth excitation of single states in bi-excitons.

If you are interested how the laser or other products can benefit your application, just contact us.

Typical Applications

- CARS - Coherent anti-Stokes Raman Spectroscopy
- SRS - Stimulated Raman Spectroscopy
- SHG - Second Harmonics Imaging
- SEHRS - Surface Enhanced Hyper Raman Spectroscopy

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(2015). Multimodal non-linear optical imaging for the investigation of drug nano-/microcrystal cell interactions European Journal of Pharmaceutics and Biopharmaceutics DOI: https://doi.org/10.1016/j.ejpb.2015.09.003	Darville, Nicolas; Saarinen, Jukka; Isomaki, Antti; Khriachtchev, Leonid; Cleeren, Dirk; Sterkens, Patrick; van Heerden, Marjolein; Annaert, Pieter; Peltonen, Leena; Santos, Helder A.; Strachan, Clare J. & den Mooter, Guy Van	CARS
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