



ISTITUTO ITALIANO
DI TECNOLOGIA

TITLE

Optical microscope system based on reversible saturable optical transitions (resolft), frequency modulation

INVENTORS

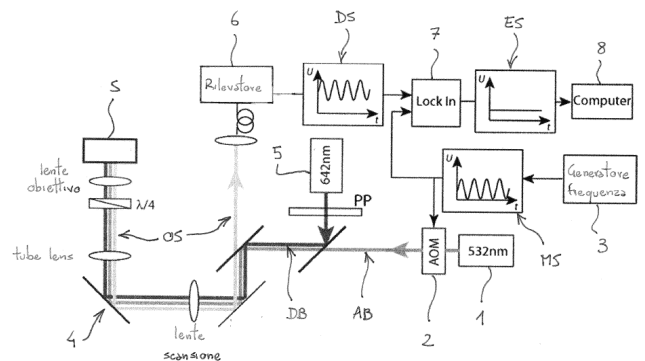
Benjamin Harke, Emiliano Ronzitti, Alberto Diaspro

DESCRIPTION

An optical microscopy system based on reversible saturable optical transitions (RESOLFT), wherein a sample to be examined contains a chemical species having at least two distinct states into which said chemical species is alternatively and reversibly switchable, at least one transition between said at least two states being optically driven, and wherein said at least two states comprise an on-state that can generate an optical signal (OS) to be detected, and an off-state that cannot generate said signal, said system comprising:

- first generating means for providing an activation beam for inducing a transition of the chemical species into said on-state,
- second generating means for providing a deactivation beam for inducing a transition of the chemical species into said off-state,
- an optical system for focusing the activation beam and the deactivation beam on respective, partially overlapping areas of said sample, and
- a detector for detecting said optical signal emitted by the sample and providing a corresponding electrical detection signal,

characterized in that said first generating means are configured for frequency modulating said activation beam, modulation filtering means being provided for filtering said electrical detection signal in such a way as to separate a main component generated by interaction between the activation beam and the sample, from a spurious component generated by interaction between the deactivation beam and the sample.



APPLICATIONS

Optical microscopy

KEYWORDS

Spatial resolution, optics, RESOLFT, signal, chemical, transition, beam, modulation, filtering



ISTITUTO ITALIANO
DI TECNOLOGIA

BIBLIOGRAPHIC DATA

Sistema di microscopia ottica basato su transizioni ottiche saturabili reversibili (resolft), in modulazione di frequenza

Application Number IT TO2012A000929

Priority Date October 23, 2012

Applicants Fondazione Istituto Italiano di Tecnologia

CONTACTS

Technology Transfer Office Lorenzo De Michieli lorenzo.demichieli@iit.it

+39 010 71781 569

Fondazione Istituto Italiano di Tecnologia - Italian Institute of Technology

Sede Legale: Via Morego, 30 16163 Genova Uffici di Roma: Via Guidubaldo del Monte, 54 00197 Roma

Tel. 010 71781 Fax. 010 720321

C.F. 97329350587 - P.I. 09198791007