

NEW DEVICE FOR CHARACTERIZING THE PROPERTIES OF MATERIALS AND BIOLOGICAL SAMPLES

INVENTION DESCRIPTION

The luminescence or fluorescence techniques are common nowadays in many types of laboratories to analyze materials, such as Biology or Materials Science.

The device based on photoluminescence technique allows a direct analysis of physical characteristics of materials or samples such as wavelength, peak intensity and decay times (lifetimes) of that electronic state.

Currently, the techniques for measuring fluorescence decay times are performed through different techniques or methods such as Time Correlated Single Photon Counting technique, the use of "Streak" cameras or "up-conversion" or "boxcar" methods. However, these measurement systems of lifetimes have significant drawbacks, such as high cost, high

complexity or a low dynamic range of detection and synchronization.

Researchers at the University of Valencia in collaboration with the Polytechnical University of Valencia have developed a new system for determining the physical properties of materials and biological samples, such as purity and crystallinity, their homogeneity or their radiative efficiency.

To determine these properties, the technology studies and analyzes the light emission of a material being excited by a pulsed laser beam focused onto it.

This system allows a significant cost reduction in the manufacture of compact and modular equipment of temporal analysis of light, given that it is based on a low-cost technology.

BUSINESS APPLICATION SECTORS

The new device of the invention is very interesting for applications in a wide range of fields such as Biology, Biomedicine, Microbiology, Pharmacology, Chemistry and Physics and Chemistry of Solid State, as the most significant fields.

TECHNICAL ADVANTAGES AND BENEFITS

The main advantages provided by the invention are:

- Low cost of some of the elements incorporated in the system.
- Modularity, at the same time, Time-Resolved Photoluminescence measurements and the detection of the spectrum that represents the photoluminescence can be obtained.

DEVELOPMENT STATUS OF TECHNOLOGY

The technology has been validated in laboratory, and currently the research group is working on its development.

INTELLECTUAL PROPERTY RIGHTS

The technology is protected through the following patents:

Spanish patent application P201431646 titled "Sistema, método y programa de ordenador para la medida y análisis de señales luminosas Temporales".

COLLABORATION SOUGHT

- License agreement, manufacturing or marketing.
- R & D project to complete the development or apply to other sectors.
- Subcontracting agreement with another company.

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- Possible spin-off (looking for partners)

RELATED IMAGES

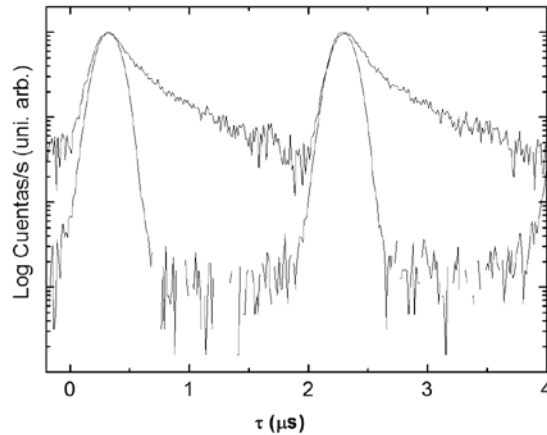


Image 1: Spectrum recorded with spatial modulation technique implemented according to the invention

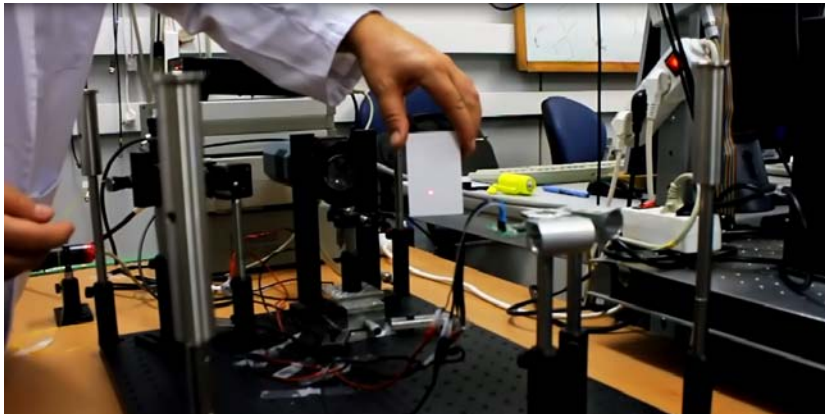


Image 2: Experimental device of the invention

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