

## Microfluidics device for SERS

The CSIC has developed a microfluidic device for the performance of surface-enhanced Raman spectroscopy (SERS) using a solid SERS substrate. By coupling this device to a Raman microscope, it is possible to detect very low concentrations of analyte in the flux directly in the microfluidic channel.

Scientific instrumentation companies interested in licensing the patent for the development of accessories for Raman microscopy are sought.

### *An offer for Patent Licensing*

#### Process control in liquid phase

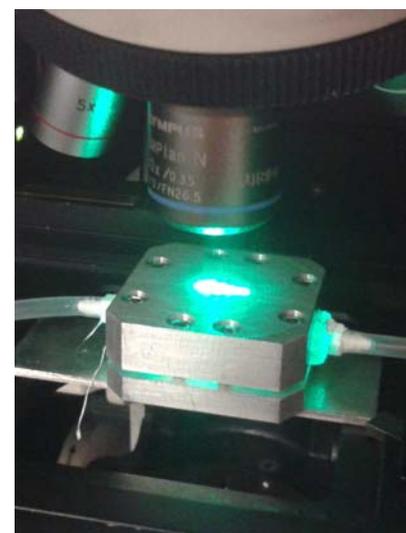
Through the use of surface-enhanced Raman spectroscopy (SERS) it is possible to achieve an extraordinary sensitivity having achieved the detection of isolated molecules (single molecule detection).

On the other hand, microfluidics allows the miniaturization of laboratory processes, thus reducing the volume of chemical agents used in the analysis.

The combination of a very high sensitivity method such as SERS spectroscopy with microfluidic devices is of great importance both in research environments and in the development of Lab-on-chip technology.

Unlike current devices, the microfluidic device of the patent does not adhere to the SERS substrate or the optical window but is sealed by applying pressure using a rigid adapter. In this way, the device presents a high versatility in terms of the type and morphology of the solid SERS substrate used. It allows an easy placement of the substrate, as well as its replacement once it has lost efficiency.

In addition, the possibility of carrying out the analysis in flow allows the control of processes in liquid phase.



Microfluidic device for SERS coupled to a Raman microscope

#### Main innovations and advantages

- It is possible to reuse the microfluidic system without the need to manufacture the complete device.
- The size of the microfluidic channel can be varied continuously in a simple way.
- The optical window can be replaced to adapt its transmission to the wavelength of the laser used.
- The device has application both, in research laboratories and in the industry for the control of liquid phase processes.
- The application sectors of the device are those of analytical chemistry, biomedicine and environmental science.

#### Patent Status

Priority patent application filed suitable for international extension

#### For more information, please contact:

Marisa Carrascoso Arranz

Deputy Vice-Presidency for Knowledge Transfer.

Spanish National Research Council (CSIC)

Tel.: +34 915681533

E-mail: [macarrascoso@orgc.csic.es](mailto:macarrascoso@orgc.csic.es)