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Battelle Number(s):

11982

Patent(s) Issued

Available for licensing in all fields

Available Technologies

Coherent Anti-Stokes Raman Spectroscopy (CARS)

SUMMARY

This technology represents a new, three-dimensional, general purpose, imaging technology that does not use intrinsic or extrinsic fluorescent labels but is instead based on molecular vibrations, making it theoretically applicable to any sample (e.g., biological samples, phase transitions in ceramic materials, etc.). The method is particularly useful for samples with strong Raman transitions. The CARS method uses two or more independently tuned laser beams such that the frequency difference can be tuned to a molecular vibration, thereby generating a species-specific imaging methodology. The imaging does not require fluorescent molecules that are either intrinsic to the sample being viewed or are attached as labels, as does commercially available optical microscopes using ultrafast lasers. The time required for scanning an image is substantially less than with a conventional Raman microprobe since the signal levels are many orders of magnitude greater.



U.S. DEPARTMENT OF
ENERGY

Patents & Intellectual Property

- » Patent #: 6,108,081

Technology Portfolio(s)

- » Other

Potential Industry Applications

- » Computers & Electronics
- » Healthcare, Pharma, Biotech & Medical

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