

Special Issue on
Raman Spectroscopy and its Applications in Biomedical Field

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Raman spectroscopy is a potentially powerful technique that can be used to analyze the molecular composition, structure, and dynamics in biological samples such as microorganisms, mammalian cells, and tissues noninvasively. Raman spectroscopy is a label-free analytical tool based on intrinsic light-scattering, which occurs as a result of interaction between vibrating molecules and incident photons, which is advantageous for clinical diagnostics, identifying new diagnostic markers, and investigating molecular mechanism in animal disease models. Nowadays Raman spectroscopy has multiple modalities, imaging, microscopic and endoscopic approach, and enhanced detection by plasmon resonance and nonlinear optics.

One of the drawbacks of Raman spectroscopy is the low signal to noise ratio and the complexity of Raman spectra obtained from biological samples. To overcome these limitations on the practical use, we have to adopt new laser systems, more sensitive detectors, novel spectral processing techniques, and image acquisition systems for existing Raman spectroscopic techniques.

This special issue focuses on technology development in optics, instruments, and data analyses, but also novel approaches including clinical, preclinical, and animal studies are discussed. We welcome submissions of original and unpublished research articles as well as review papers on Raman spectroscopic techniques and optical systems related to biomedical applications in this special issue.

Potential topics include but are not limited to the following:

- ▶ Spontaneous Raman spectroscopy/imaging
- ▶ Coherent Raman spectroscopy/imaging (CARS/SRS)
- ▶ Plasmon resonance spectroscopy/imaging (SERS/TERS)
- ▶ Endoscopy and fiber-optic probes in clinical use
- ▶ *In vivo/vitro* assessment in diagnostics, therapeutics, and pharmaceuticals

Authors can submit their manuscripts through the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/jspec/ramans/>.

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First Round of Reviews

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