

Special Issue

Developing New Tools for Vibrational Spectroscopy for Biomedical and Environmental Applications

Message from the Guest Editors

Among the most notable innovations are quantum cascade lasers (QCLs) that revolutionise mid-infrared spectroscopy, surface-enhanced Raman spectroscopy (SERS), and tip-enhanced Raman spectroscopy (TERS) for nanoscale study, advancements in chemometric approaches and AI-driven spectral interpretation that improve the accuracy and interpretability of the data, and real-time monitoring. Additionally, the development of portable Raman and IR spectrometers and advanced imaging modalities is expanding the applicability of vibrational spectroscopy from traditional laboratory settings to fieldwork. Over the years, these new tools and spectroscopic techniques are expanding the application of vibrational spectroscopy across different fields such as the biomedical and environmental one due to their high specificity, and ability to provide molecular-level insights into complex biological systems, making them an invaluable tool for applications in diagnostics, disease monitoring, and therapeutic development and also for studying water and soil quality and environmental changes.

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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal *Applied Sciences* has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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