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Battery Research and Failure Analysis Using Vibrational Spectroscopy

Tuesday, October 11, 2022 1:00 PM - 2:00 PM EDT

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Presented by



.: About This Webinar

Combining electrochemistry with vibrational spectroscopy is helpful for studying electrochemical reactions, battery research, and failure analysis. Each molecule has a unique infrared and Raman signature that provides high specificity for the analysis of molecular change during electrochemical reactions.

Sergey Shilov, Ph.D., of Bruker Optics presents an overview of spectroelectrochemical tools and the optimization of their setup, and he shares details about the communication between the potentiostat and the spectrometer.

Applications for vibrational spectroscopy combined with electrochemistry include the electro-oxidation of metal-organic complexes, carbon analysis in flexible electrodes, the chemical mapping of the solid electrolyte interface of lithium metal batteries, and the analysis of the gases that are evolved during the batteries' decomposition.

Who should attend:

Engineers, manufacturers, and R&D scientists who utilize or are interested in vibrational spectroscopy or electrochemistry. Those whose work includes electrochemical reactions, battery research, and failure analysis. Anyone who works with technologies such as imaging, microscopy, nanophotonics, and test and measurement in industries such as aerospace, automotive, and medicine.

About the presenter:

Sergey Shilov, Ph.D., is research and development product manager for North America at Bruker Optics. He joined Bruker in 2001 and is responsible for the support and development of new applications for the Bruker research Fourier transform infrared (FTIR) systems. He received a doctorate in polymer physics from the Russian Academy of Sciences in 1992 and a Master of Science degree in physics from St. Petersburg State University in 1986. The Alexander Von Humboldt foundation in Germany awarded him a research fellowship in 1996. Shilov has published 37 papers in peer-reviewed journals, and his research interests include time-resolved FTIR spectroscopy, surface science, polymers, and life science applications.

About Bruker Optics:

[Bruker Optics](#) is a performance leader in life science and analytical systems. For over 50 years, Bruker has been driven by a single idea: to provide the best technological solution for each analytical task. Bruker's trusted solutions encompass a wide number of analytical techniques ranging from magnetic resonance to mass spectrometry and gas chromatography, to microanalysis, optical, and x-ray spectroscopy. These market- and technology-leading products are driving and facilitating key application areas such as life science research, pharmaceutical analysis, applied analytical chemistry applications, materials research, nanotechnology, clinical research, molecular diagnostics, and homeland defense.



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