Near-Infrared Spectroscopy: Principles, Instruments, Applications
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DESCRIPTION

Over the last few years, near-infrared (NIR) spectroscopy has rapidly developed into an important and extremely useful method of analysis. In fact, for certain research areas and applications, ranging from material science via chemistry to life sciences, it has become an indispensable tool because this fast and cost-effective type of spectroscopy provides qualitative and quantitative information not available from any other technique.

This book offers a balanced overview of the fundamental theory and instrumentation of NIR spectroscopy, introducing the material in a readily comprehensible manner. A considerable part of the text is dedicated to practical applications, including sample preparation and investigations of polymers, textiles, drugs, food and animal feed. However, special topics, such as two-dimensional correlation analysis, are also covered in separate chapters.

Written by eight experts in different fields, this book presents an introduction to the current state of developments and is valuable to spectroscopists and to practitioners applying NIR spectroscopy as a daily analytical tool.

ABOUT THE AUTHOR

Heinz W. Siesler is Professor Emeritus of Physical Chemistry at the University of Duisburg-Essen. After receiving his PhD in chemistry from the University of Vienna, he worked as a postdoctoral fellow at the University of Cologne and as a lecturer at the Witwatersrand University. Prior to his academic position, he gained industrial experience as section head in molecular
spectroscopy and thermal analysis in the Corporate R&D Department of Bayer AG. Between 1992 and 2010 he held guest professorships in France, Japan, and Austria. Professor Siesler is a recipient of the EAS Award, the Tomas Hirschfeld Award and the Buechi Award in near-infrared spectroscopy and he is a Fellow of the Society for Applied Spectroscopy. His main research focuses on the application of vibrational spectroscopy to chemical and polymer research, analysis and quality control, and he has authored more than 230 publications in this field.

Yukihiro Ozaki is a Japanese scientist. He is also a professor at Kwansei Gakuin University in the Department of Chemistry, School of Science and Technology. He was born in Sakai, Osaka, Japan. He has been honored for his work in molecular spectroscopy research over many years.

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