Record Nr. UNINA9910143970603321 Near-infrared spectroscopy [[electronic resource]]: principles, **Titolo** instruments, applications / / edited by H.W. Siesler ... [et al.] Pubbl/distr/stampa Weinheim, : Wiley-VCH, c2002 **ISBN** 1-281-76395-0 9786611763954 3-527-61266-1 3-527-61267-X Descrizione fisica 1 online resource (364 p.) Altri autori (Persone) SieslerH. W. <1943-> Disciplina 543.08583 543/.08583 Soggetti Near infrared spectroscopy Infrared spectroscopy Electronic books. Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Near-Infrared Spectroscopy Principles, Instruments, Applications: Contents: Foreword: List of Contributors: 1 Introduction: 1.1 General Remarks; 1.2 Basic Principles of Vibrational Spectroscopy; 1.3 Instrumentation: 1.4 Process-Monitoring: 1.5 References: 2 Origin of Near-Infrared Absorption Bands; 2.1 Introduction; 2.2 Principles of Near-Infrared Spectroscopy; 2.2.1 The Diatomic Molecule; 2.2.1.1 The Harmonic Oscillator; 2.2.1.2 Anharmonic Oscillator; 2.2.2 The Polyatomic Molecule; 2.2.2.1 Harmonic Approximation; 2.2.2.2 Influence of Anharmonicity; 2.2.2.3 Degenerate Vibrations 2.2.2.4 Symmetry Considerations2.2.2.5 Fermi and Darling-Denisson Resonances; 2.3 Chemical Assignments of NIR Bands; 2.3.1 Group Frequencies; 2.3.1.1 C-H Absorptions; 2.3.1.2 O-H Absorptions; 2.3.1.3 N-H Absorptions; 2.3.2 Deuteration; 2.3.3 Polarisation Measurements; 2.3.4 Two-Dimensional Correlation Spectroscopy; 2.4 Conclusion: 2.5 References: 3 Instrumentation for Near-Infrared Spectroscopy; 3.1 Configuration of Near-Infrared Spectrometers; 3.2

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Sommario/riassunto

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 m

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