

Contents

1 Lasers, Spectrographs, and Detectors <i>Fred LaPlant*</i>	1
2 Fiber-Optic Raman Probes for Biomedical and Pharmaceutical Applications <i>Hidetoshi Sato*, Hideyuki Shinzawa, and Yuichi Komachi</i>	25
3 Characterisation of Deep Layers of Tissue and Powders: Spatially Offset Raman and Transmission Raman Spectroscopy <i>Neil A. Macleod, Michael D. Morris, and Pavel Matousek*</i>	47
4 Applications of Raman and Surface-Enhanced Raman Scattering to the Analysis of Eukaryotic Samples <i>Franziska Schulte, Virginia Joseph, Ulrich Panne, and Janina Kneipp*</i> .	71
5 Raman Imaging and Raman Mapping <i>Francis W.L. Esmonde-White and Michael D. Morris*</i>	97
6 Coherent Raman Scattering Microscopy <i>Andreas Volkmer*</i>	111
7 Raman Optical Activity of Biological Molecules <i>Ewan W. Blanch* and Laurence D. Barron</i>	153
8 Chemometric Methods for Biomedical Raman Spectroscopy and Imaging <i>Rohith K. Reddy and Rohit Bhargava*</i>	179
9 Discovery and Formulation <i>Don Clark* and Caroline Rodger</i>	215

10 Raman Spectroscopy: A Strategic Tool in the Process Analytical Technology Toolbox	
<i>Jonas Johansson*, Mike Claybourn, and Staffan Folestad</i>	241
11 Emerging Dental Applications of Raman Spectroscopy	
<i>Lin-P'ing Choo-Smith*, Mark Hewko, and Michael G. Sowa</i>	263
12 Raman Spectroscopy of Ocular Tissue	
<i>Igor V. Ermakov, Mohsen Sharifzadeh, and Warner Gellermann*</i>	285
13 Raman Spectroscopy for Early Cancer Detection, Diagnosis and Elucidation of Disease-Specific Biochemical Changes	
<i>Nicholas Stone* and Catherine A. Kendall</i>	315
14 Raman Spectroscopy of Bone and Cartilage	
<i>Michael D. Morris*</i>	347
15 Raman Microscopy and Imaging: Applications to Skin Pharmacology and Wound Healing	
<i>Carol R. Flach, Guojin Zhang, and Richard Mendelsohn*</i>	365
16 Raman Spectroscopy of Blood and Urine Specimens	
<i>Andrew J. Berger*</i>	385
17 Quantitative Raman Spectroscopy of Biomaterials for Arthroplastic Applications	
<i>Giuseppe Pezzotti*</i>	405
18 Raman Spectroscopy: A Tool for Tissue Engineering	
<i>Gavin Jell, Robin Swain, and Molly M. Stevens*</i>	419
19 Applications of Raman Spectroscopy to Virology and Microbial Analysis	
<i>Michaela Harz, Stephan Stöckel, Valerian Ciobotă, Dana Cialla, Petra Rösch, and Jürgen Popp*</i>	439
Index	467