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Nota di contenuto	MULTIDIMENSIONAL LIQUID CHROMATOGRAPHY; CONTENTS; Foreword; Preface; Contributors; 1 Introduction; 1.1 Previous Literature Which Covers MDLC; 1.2 How this Book is Organized; References; PART I THEORY; 2 Elements of the Theory of Multidimensional Liquid Chromatography; 2.1 Introduction; 2.2 Peak Capacity; 2.3 Resolution; 2.4 Orthogonality; 2.5 Two-Dimensional Theory of Peak Overlap; 2.6 Dimensionality, Peak Ordering, and Clustering; 2.7 Theory of Zone Sampling; 2.8 Dilution and Limit of Detection; 2.9 Chemometric Analysis; 2.10 Future Directions; References

3 Peak Capacity in Two-Dimensional Liquid Chromatography3.1 Introduction; 3.2 Theory; 3.3 Procedures; 3.4 Results and Discussion; 3.5 Conclusions; Appendix 3A Generation of Random Correlated Coordinates; Appendix 3B Derivation of Limiting Correlation Coefficient r; References; 4 Decoding Complex 2D Separations; 4.1 Introduction; 4.2 Fundamentals: The Statistical Description of Complex Multicomponent Separations; 4.3 Decoding 1D and 2D Multicomponent Separations by Using the SMO Poisson Statistics; 4.4 Decoding Multicomponent Separations by the Autocovariance Function
4.5 Application to 2D Separations4.5.1 Results from SMO Method; 4.5.2 Results from 2D Autocovariance Function Method; 4.6 Concluding Remarks; Acknowledgments; References; PART II COLUMNS, INSTRUMENTATION AND METHODS DEVELOPMENT; 5 Instrumentation for Comprehensive Multidimensional Liquid Chromatography; 5.1 Introduction; 5.2 Heart-Cutting Versus Comprehensive Mode; 5.3 Chromatographic Hardware; 5.3.1 Valves; 5.4 CE Interfaces; 5.4.1 Gated Interface for HPLC-CE; 5.4.2 Microfluidic Valves for On-Chip Multidimensional Analysis; 5.5 Columns and Combinations
5.5.1 Column Systems, Dilution, and Splitting5.6 Detection; 5.7 Computer Hardware and Software; 5.7.1 Software Development; 5.7.2 Valve Sequencing; 5.7.3 Data Format and Storage; 5.8 Zone Visualization; 5.8.1 Contour Visualization; 5.8.2 2D Peak Presentation; 5.8.3 Zone Visualization in Specific Chemical (pI) Regions; 5.8.4 External Plotting Programs; 5.8.5 Difference Plots; 5.8.6 Multi-channel Data; 5.9 Data Analysis and Signal Processing; 5.10 Future Prospects; References; 6 Method Development in Comprehensive Multidimensional Liquid Chromatography; 6.1 Introduction; 6.2 Previous Work
6.3 Column Variables6.4 Method Development; 6.4.1 The Cardinal Rules of 2DLC Method Development; 6.5 Planning the Experiment; 6.6 General Comments on Optimizing the 2DLC Experiment: Speed-Resolution Trade-off; Acknowledgment; References; 7 Monolithic Columns and Their 2D-HPLC Applications; 7.1 Introduction; 7.2 Monolithic Polymer Columns; 7.2.1 Structural Properties of Polymer Monoliths; 7.2.2 Chromatographic Properties of Polymer Monolithic Columns; 7.2.3 Two-Dimensional HPLC Using Polymer Monoliths; 7.3 Monolithic Silica Columns; 7.3.1 Preparation
7.3.2 Structural Properties of Monolithic Silica Columns

Sommario/riassunto

Multidimensional Liquid Chromatography (MDLC) is a very powerful separation technique for analyzing exceptionally complex samples in one step. This authoritative reference presents a number of recent contributions that help define the current art and science of MDLC. Topics covered include instrumentation, theory, methods development, and applications of MDLC in the life sciences and in industrial chemistry. With the information to help you perform very difficult separations of complex samples, this reference includes chapters contributed by leading experts or teams of experts.