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Titolo	Dendrimer chemistry [[electronic resource] ] : concepts, syntheses, properties, applications // Fritz Vogtle, Gabriele Richardt and Nicole Werner ; [translator Anthony J. Rackstraw]
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Nota di contenuto	Dendrimer Chemistry; Contents; Preface; 1 Introduction; 1.1 Historical - Cascade molecules and dendrimers; 1.2 Dendritic architectures; 1.3 Perfection, defects, dispersity; 1.4 Definition and classification of dendritic molecules; 1.5 Nomenclature of dendritic molecules; 1.5.1 Newkome nomenclature; 1.5.2 Cascadane nomenclature; Bibliography and Notes for Chapter 1 "Introduction"; 2 Synthetic methods for dendritic molecules; 2.1 Divergent synthesis; 2.2 Convergent synthesis; 2.3 Recent synthetic methods; 2.3.1 Orthogonal synthesis; 2.3.2 Double-stage convergent method 2.3.3 Double-exponential method2.3.4 Hypermonomer method; 2.3.5 Click chemistry; 2.4 Solid phase synthesis; 2.5 Coordination-chemical synthesis; 2.5.1 Metal complex as core unit; 2.5.2 Metal complexes as branching unit; 2.6 Supramolecular synthesis; 2.7 Hyperbranched polymers; 2.8 Dendronised linear polymers; 2.8.1 Polymer-analogous

method; 2.8.2 Macromonomer method; 2.9 Dendro-Isomers; Bibliography and Notes for Chapter 2 "Synthetic methods for dendritic molecules"; 3 Functional dendrimers; 3.1 Monofunctional dendrimers; 3.1.1 Functional core; 3.1.2 Functional periphery 3.1.2.1 Functionalisation of terminal groups 3.1.2.2 Introduction of peripheral groups prior to dendrimer growth; 3.1.3 Functional units in the dendrimer scaffold; 3.1.3.1 Modification prior to dendrimer growth; 3.1.3.2 Internal modification on conclusion of dendrimer growth; 3.2 Multifunctional dendrimers; 3.2.1 Bifunctionalised molecular periphery; 3.2.2 Two different functional units in different parts of the molecule; 3.2.3 More than two different functional units; 3.2.4 Overview of functional dendrimers and their synthesis; Bibliography and Notes for Chapter 3 "Functional dendrimers"

4 Types of dendrimers and their syntheses 4.1 Achiral dendrimers; 4.1.1 POPAM; 4.1.2 PAMAM; 4.1.3 POMAM; 4.1.4 Polylysine dendrimers; 4.1.5 Dendritic hydrocarbons; 4.1.5.1 Condensed arene components - Iptycenes; 4.1.5.2 Dendrimers from arene and multiply bonded building blocks; 4.1.5.3 Stilbenoid dendrimers; 4.1.5.4 Hyperbranched polybenzenes; 4.1.6 Carbon/oxygen-based (and Fréchet) dendrimers; 4.1.6.1 Polyether dendrimers; 4.1.6.2 Polyester dendrimers; 4.1.6.3 Carbohydrate dendrimers (glycodendrimers); 4.1.7 Porphyrin-based dendrimers; 4.1.8 Ionic dendrimers; 4.1.8.1 Polyanionic dendrimers 4.1.8.2 Polycationic dendrimers 4.1.9 Silicon-based dendrimers; 4.1.9.1 Silane dendrimers; 4.1.9.2 Carbosilane dendrimers; 4.1.9.3 Carbosiloxane dendrimers; 4.1.9.4 Siloxane dendrimers; 4.1.9.5 Hyperbranched silicon-based polymers; 4.1.10 Phosphorus-based dendrimers; 4.1.11 Metallo-dendrimers (and Newkome dendrimers); Bibliography and Notes for Section 4.1 "Achiral dendrimers"; 4.2 Chiral dendrimers; 4.2.1 Classification of chiral dendrimers; 4.2.2 Studies on the chirality of dendritic molecules; 4.2.2.1 Chiroptical studies; 4.2.2.2 Possible applications of chiral dendrimers 4.2.3 Dendrimers with chiral core and achiral branching scaffold

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## Sommario/riassunto

Written by internationally acclaimed authors, this textbook contains everything you need to know about this versatile class of compounds. Starting with a historical overview, definitions and other fundamentals, it goes on to look at characterization, analysis and properties of dendrimers. While the focus is on synthesis and applications, it also contains chapters on analytics and other applications. Essential reading for organic and polymer chemists, undergraduate and graduate students, students and lecturers in chemistry.

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