Record Nr.	UNINA9910830959503321
Titolo	Strained hydrocarbons [[electronic resource]] : beyond the van't Hoff and Le Bel hypothesis / / edited by Helena Dodziuk
Pubbl/distr/stampa	Weinheim, : Wiley-VCH, c2009
ISBN	1-282-11847-1 9786612118470 3-527-62713-8 3-527-62714-6
Descrizione fisica	1 online resource (495 p.)
Altri autori (Persone)	DodziukHelena
Disciplina	547.01 547/.01
Soggetti	Hydrocarbons Chemistry, Organic
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	Strained Hydrocarbons; Foreword; Preface; Contents; List of Contributors; 1 Introduction; 1.1 Initial Remarks; 1.2 Hydrocarbons with Unusual Spatial Structure: the Need to Finance Basic Research; 1.3 Computations on Strained Hydrocarbons; 1.4 Gallery of Molecules That Could Have Been Included in This Book; 1.4.1 Introductory Remarks; 1.4.2 Saturated Hydrocarbons; 1.4.3 Distorted Double Bonds; 1.4.4 Benzene Rings with Nontypical Spatial Structures; 1.4.5 Cumulenes; 1.4.6 Acetylenes; References; 2 Distorted Saturated Hydrocarbons; 2.1 Molecules with Inverted Carbon Atoms; 2.1.1 Introduction 2.1.2 Small-ring Propellanes: Computational and Physicochemical Studies2.1.3 Small-ring Propellanes: Experimental Results; 2.1.3.1 Preparation and Reactivity of [1.1.1]Propellane; 2.1.3.2 Preparation and Reactivity of [2.1.1]Propellane and [2.2.1]Propellane; 2.1.3.3 [1.1.1] Propellane as the Precursor for the Synthesis of Other Unusual Molecules; 2.1.4 New Hypothetical Molecules with Inverted Carbon Atoms; 2.2 Molecules with Planar and Pyramidal Carbon Atoms; 2.3 A Theoretical Approach to the Study and Design of Prismane Systems; 2.3.1 Introduction; 2.3.2 Prismanes; 2.3.3 Expanded Prismanes

1.

	 2.3.3.1 Asteranes2.3.3.2 Ethynyl-expanded Prismanes; 2.3.4 Dehydroprismanes; 2.3.5 Polyprismanes; 2.3.5.1 Cubane Oligomers; 2.3.5.2 Fused Prismanes; 2.3.6 Conclusions; 2.4 (CH)(2n) Cage Structures, 'in'-'out' Isomerism in Perhydrogenated Fullerenes and Planar Cyclohexane Rings; 2.4.1 (CH)(2n) Cage Structures; 2.4.1.1 Tetrahedrane; 2.4.1.2 Triprismane; 2.4.1.3 Cubane 61, Cuneane 100 and Octabisvalene 101 C(8)H(8); 2.4.1.4 C(10)H(10) Saturated Cages; 2.4.1.5 C(12)H(12) Saturated Cages; 2.4.1.6 Higher [n]Prismanes, Dodecahedrane 2.4.1.7 'In'-'out' Isomerism in Perhydrogenated Fullerenes C(60)H(60) 2.4.1.8 Summary; 2.4.2 Planar Cyclohexane Rings; 2.5 Ultralong C-C Bonds; 2.5.1 Introduction; 2.5.2 Ultralong C-C Bonds Confined in a Stiff Molecular Frame; 2.5.3 Tetraphenylnaphthocyclobutene as a Scaffold to Produce Ultralong C-C Bonds; 2.5.4 'Clumped' Hexaphenylethane Derivatives with Elongated and Ultralong C-C Bonds; 2.5.5 HPE Derivatives with a Super-ultralong C-C Bond; 2.5.6 'Expandability' of the Ultralong C-C Bonds; 2.6.3 Coupled Cage Compounds: 2.6.1 Introduction2.6.2 Tricyclo[2.1.0.0(2,5)]pentanes: Ultrashort Endocyclic Bridging C-C Bonds; 2.6.3 Coupled Cage Compounds: Ultrashort Exocyclic Intercage C-C Bonds; 2.6.4 Sterically Congested in-Methylcyclophanes: Ultrashort C-C(Me) Bonds; 2.6.5 Conclusions; References; 3 Distorted Alkenes; 3.1 Nonplanar Alkenes; 3.1.1 Introduction and Context; 3.1.2 Bridgehead Alkenes; 3.1.2.1 t-Butyl- substituted Ethylenes; 3.1.2.3 Cyclo and Bicycloalkenes and on to Polycyclic Analogs 3.1.2.4 Adamantylideneadamantane and its Derivatives
Sommario/riassunto	In clearly structured chapters, this book covers the fascinating world of hydrocarbons, providing an insight into the fundamental principles of chemistry. The monograph covers modern aspects of the topic, such as carbon nanotubes, molecular flask inclusion, and fullerenes, with new synthetic procedures for the build up of the structural lattice included.