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Nota di contenuto	TITLE PAGE ; COPYRIGHT PAGE ; CONTENTS; LIST OF CONTRIBUTORS; PREFACE; Part I Electrophilic Aromatic Substitution ; CHAPTER 1 ELECTROPHILIC AROMATIC SUBSTITUTION: MECHANISM ; 1.1 INTRODUCTION; 1.2 GENERAL ASPECTS; 1.3 ELECTROPHILES; 1.4 ARENE NUCLEOPHILES; 1.5 -COMPLEX INTERMEDIATES ; 1.6 -COMPLEX OR WHELAND INTERMEDIATES ; 1.7 SUMMARY AND OUTLOOK; ABBREVIATIONS ; REFERENCES ; CHAPTER 2 FRIEDEL-CRAFTS ALKYLATION OF ARENES IN TOTAL SYNTHESIS ; 2.1 INTRODUCTION; 2.2 TOTAL SYNTHESIS INVOLVING INTERMOLECULAR FC ALKYLATIONS; 2.2.1 Synthesis of Coenzyme Q10 2.2.2 Total Synthesis of (±)-Brasiliquinone B 2.2.3 Synthesis of (2212;-) Podophyllotoxin ; 2.2.4 Synthesis of Puupehenol and Related Compounds; 2.2.5 Synthesis of (2212;-)-Talaumidin ; 2.2.6 Total Synthesis of (±)-Schefferine ; 2.3 TOTAL SYNTHESIS INVOLVING INTRAMOLECULAR FC ALKYLATIONS; 2.3.1 C-C Bond Formation Leading to Homocyclic Rings ; 2.3.2 C-C Bond Formation Leading to Oxygen-Containing Rings ; 2.3.3 C-C Bond Formation Leading to Nitrogen-Containing Rings ; 2.4 TOTAL SYNTHESIS THROUGH TANDEM AND CASCADE PROCESSES INVOLVING FC REACTIONS

2.4.1 C-C Bond Formation Leading to Homocyclic Rings 2.4.2 C-C Bond Formation Leading to Oxygen-Containing Rings ; 2.4.3 C-C Bond Formation Leading to Nitrogen-Containing Rings ; 2.5 TOTAL SYNTHESIS INVOLVING ipso-FC REACTIONS ; 2.5.1 Synthesis of (S)-(2212;)-Xylopinine ; 2.5.2 Synthesis of Garcibracteatone; 2.6 SUMMARY AND OUTLOOK; 2.7 ACKNOWLEDGMENT; ABBREVIATIONS ; REFERENCES; CHAPTER 3 CATALYTIC FRIEDEL-CRAFTS ACYLATION REACTIONS ; 3.1 INTRODUCTION AND HISTORICAL BACKGROUND; 3.2 CATALYTIC HOMOGENEOUS ACYLATIONS; 3.2.1 Metal Halides 3.2.2 Perfluoroalkanoic Acids, Perfluorosulfonic Acids, and Their (Metal) Derivatives 3.2.3 Miscellaneous; 3.3 CATALYTIC HETEROGENEOUS ACYLATIONS; 3.3.1 Zeolites; 3.3.2 Clays; 3.3.3 Metal Oxides; 3.3.4 Acid-Treated Metal Oxides ; 3.3.5 Heteropoly Acids (HPAs); 3.3.6 Nafion; 3.3.7 Miscellaneous; 3.4 DIRECT PHENOL ACYLATION; 3.5 SUMMARY AND OUTLOOK; ABBREVIATIONS ; REFERENCES ; CHAPTER 4 THE USE OF QUANTUM CHEMISTRY FOR MECHANISTIC ANALYSES OF SEAr REACTIONS ; 4.1 INTRODUCTION; 4.1.1 Historical Overview of Early Quantum Chemistry Work 4.1.2 Current Mechanistic Understanding Based on Kinetic and Spectroscopic Studies 4.2 THE SEAr MECHANISM: QUANTUM CHEMICAL CHARACTERIZATION IN GAS PHASE AND SOLUTION; 4.2.1 Nitration and Nitrosation; 4.2.2 Halogenation; 4.2.3 Sulfonation; 4.2.4 Friedel-Crafts Alkylations and Acylations; 4.3 PREDICTION OF RELATIVE REACTIVITY AND REGIOSELECTIVITY BASED ON QUANTUM CHEMICAL DESCRIPTORS; 4.4 QUANTUM CHEMICAL REACTIVITY PREDICTION BASED ON MODELING OF TRANSITION STATES AND INTERMEDIATES; 4.4.1 Transition State Modeling; 4.4.2 The Reaction Intermediate or Sigma-Complex Approach 4.5 SUMMARY AND CONCLUSIONS

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Sommario/riassunto	Recent advances in artificial intelligence have the potential to further develop current big data research. The Special Issue on 'Intelligent Computing for Big Data' highlighted a number of recent studies related to the use of intelligent computing techniques in the processing of big data for text mining, autism diagnosis, behaviour recognition, and blockchain-based storage.