

# Contents

<b>The Emergence of Covalent On-Surface Polymerization</b> . . . . .	1
Christophe Nacci, Stefan Hecht and Leonhard Grill	
<b>Transition Metals Trigger On-Surface Ullmann Coupling Reaction: Intermediate, Catalyst and Template</b> . . . . .	23
L. Dong, S. Wang, W. Wang, C. Chen, T. Lin, J. Adisoejoso and N. Lin	
<b>On-Surface (Cyclo-)Dehydrogenation Reactions: Role of Surface Diffusion</b> . . . . .	43
José A. Martín-Gago, Anna L. Pinardi and José I. Martínez	
<b>Ene diyne Cyclization Chemistry on Surfaces Under Ultra-High Vacuum</b> . . . . .	85
Dimas G. de Oteyza	
<b>On-Surface Synthesis by Azide–Alkyne Cycloaddition Reactions on Metal Surfaces</b> . . . . .	101
Oscar Díaz Arado, Harry Mönig and Harald Fuchs	
<b>On-Surface Synthesis of Phthalocyanine Compounds</b> . . . . .	115
E. Nardi, M. Koudia, S. Kezilebieke, J.-P. Bucher and M. Abel	
<b>Molecular On-Surface Synthesis: Metal Complexes, Organic Molecules, and Organometallic Compounds</b> . . . . .	131
J. Michael Gottfried	
<b>On-Surface Synthesis of Single Conjugated Polymer Chains for Single-Molecule Devices</b> . . . . .	167
Yuji Okawa, Swapan K. Mandal, Marina Makarova, Elisseos Verveniotis and Masakazu Aono	
<b>On-Surfaces Synthesis on Insulating Substrates</b> . . . . .	181
Markus Kittelmann, Robert Lindner and Angelika Kühnle	



<b>Bottom-Up Fabrication of Two-Dimensional Polymers on Solid Surfaces</b> .....	199
Markus Lackinger	
<b>On-Surface Dynamic Covalent Chemistry</b> .....	221
Jie-Yu Yue, Li-Jun Wan and Dong Wang	
<b>Synthesis of Atomically Precise Graphene-Based Nanostructures: A Simulation Point of View</b> .....	237
L. Talirz, P. Shinde, D. Passerone and C.A. Pignedoli	
<b>Formation Mechanisms of Covalent Nanostructures from Density Functional Theory</b> .....	269
Jonas Björk	