Contents

Part I	Adsorption-Desorption Kinetics: Dynamics versus Thermodynamics	
Kinetics: I and Statis	m and Non-equilibrium Effects in Adsorption-Desorption Influences of Interaction Dynamics, Reaction Kinetics, tical Mechanics of the Adlayer nzel (With 9 Figures)	2
of Detailed	nd Dynamics of Gas-Surface Interaction: The Principles d Balance and Unitarity enig (With 17 Figures)	19
	stributions of Thermally Desorbed Molecules: NO on and Pt(111). By J.C. Tully (With 2 Figures)	37
	orium Desorption of Physisorbed Atoms Gortel and H.J. Kreuzer (With 4 Figures)	44
	Surface Kinetics Using Second-Harmonic Generation . Tom (With 4 Figures)	54
Electron E	asurements of Surface Kinetics by Time-Resolved Energy Loss Spectroscopy. By T.H. Ellis, M. Morin, is, M.J. Cardillo, and S.D. Kevan (With 5 Figures)	63
by Ni(111)	ffects in the Adsorption and Desorption of Hydrogen By J.T. Yates, Jr., J.N. Russell, Jr., I. Chorkendorff, Gates (With 14 Figures)	71
•	n-Desorption Kinetics: Some Comments	89
Part II	Precursors: Myth or Reality?	
	Intermediates and Precursor-Mediated Surface	
Reactions: Manifestat	General Concepts, Direct Observations and Indirect cions. By W.H. Weinberg (With 4 Figures)	94
		ΙX

Precursor States, Myth or Reality: A Perspective from Molecular Beam Studies By D.J. Auerbach and C.T. Rettner (With 13 Figures)	125	
Molecular Beam Studies of Dissociative Chemisorption on W(110) By C.T. Rettner and D.J. Auerbach (With 2 Figures)		
The Role of Precursors in Molecular Chemisorption and Thermal Desorption. By E.S. Hood, B.H. Toby, W. Tsai, and W.H. Weinberg (With 5 Figures)	153	
Adsorption and Reaction of CO ₂ on Metal Surfaces. Detection of an Intrinsic Precursor to Dissociation By B. Bartos, HJ. Freund, H. Kuhlenbeck, and M. Neumann (With 7 Figures)	164	
Influence of Electronic and Geometric Structure on Desorption Kinetics of Isoelectronic Polar Molecules: NH ₃ and H ₂ O By T.E. Madey, C. Benndorf, and S. Semancik (With 4 Figures).	175	
A Molecular Orbital Analysis of Chemisorption Precursor States By E.L. Garfunkel and Xing-hong Feng (With 5 Figures)		
Thermal and Non-thermal Activation of Si(100) Surface Nitridation. By F. Bozso and Ph. Avouris (With 5 Figures)	188	
Precursor Mediated and Direct Adsorption: Two Channels Leading to Chemisorption. By T. Engel	195	
Part III Kinetics of Phase Transitions at Surfaces		
Experiments on Kinetic Effects at Phase Transitions By K. Heinz (With 25 Figures)	202	
Kinetics of Adatom Ordering on Surfaces By J.D. Gunton (With 5 Figures)	238	
Kinetics of Domain Growth in a Model of O/Pd(110) By T. Ala-Nissila and J.D. Gunton (With 5 Figures)	253	
The Influence of Hydrogen on the Infrared Spectrum of N ₂ Chemisorbed on the Ni(110) Surface By M.E. Brubaker, I.J. Malik, and M. Trenary (With 4 Figures) .	264	
The Reaction of Carbon Monoxide with Chemisorbed Oxygen on Pd(110): An Example of a Structure-Sensitive Reaction By J. Goschnick, J. Loboda-Cackovic, J.H. Block, and M. Grunze		
(With 5 Figures)	269	

Conformal Invariance, Multiple Scattering and the Au(110) (1x2) to (1x1) Phase Transition. By P. Kleban, R. Hentschke, and J.C. Campuzano (With 2 Figures)	280
Self-sustained Kinetic Oscillations in the Catalytic CO Oxidation on Platinum. By Y.J. Chabal, S.B. Christman, V.A. Burrows, N.A. Collins, and S. Sundaresan (With 6 Figures)	285
Kinetics of Surface Phase Transitions: Some Comments By P. Kleban	296
Index of Contributors	299