

CONTENTS

Introduction	v
Preface	vii
1. Exploring Chemistry in Extreme Environments: A Driving Force for Innovation Michael R. Berman	1
2. Chemistry under Extreme Conditions: Cluster Impact Activation Tamar Raz and Raphael D. Levine	20
3. Nonequilibrium Chemistry Modeling in Rarefied Hypersonic Flows Iain D. Boyd	81
4. Chemical Dynamics in Chemical Laser Media Michael C. Heaven	138
5. From Elementary Reactions to Complex Combustion Systems Christof Schulz, Hans-Robert Volpp and Jürgen Wolfrum	206
6. The Gas-Phase Chemical Dynamics Associated with Meteors Rainer A. Dressler and Edmond Murad	268
7. Dynamics of Hypervelocity Gas/Surface Collisions Dennis C. Jacobs	349

8.	Surface Chemistry in the Jovian Magnetosphere Radiation Environment	390
	Robert E. Johnson	
9.	Dynamics of Atomic Oxygen Induced Polymer Degradation in Low Earth Orbit	420
	Timothy K. Minton and Donna J. Garton	
10.	Atomic-Level Properties of Thermal Barrier Coatings: Characterization of Metal–Ceramic Interfaces	490
	Asbjorn Christensen, Emily A. A. Jarvis and Emily A. Carter	
11.	Molecular Dynamics Simulations of Detonations	547
	Carter T. White, David R. Swanson and Daniel H. Robertson	
	Glossary	593
	Index	597