

# CONTENTS

Preface

vii

## SOOT

1. **Role of C<sub>4</sub> Hydrocarbons in Aromatic Species Formation in Aliphatic Flames** ..... 3  
J. A. Cole, J. D. Bittner, J. P. Longwell, and J. B. Howard
2. **Quantitative Chemical Mechanism for Heterogeneous Growth of Soot Particles in Premixed Flames** ..... 23  
Stephen J. Harris
3. **Ion Concentrations in Premixed Acetylene-Oxygen Flames near the Soot Threshold** ..... 33  
D. G. Keil, R. J. Gill, D. B. Olson, and H. F. Calcote
4. **Reactivities and Structures of Some Hydrocarbon Ions and Their Relationship to Soot Formation** ..... 49  
John R. Evler

## FUEL NITROGEN

5. **Nitrogen Chemistry in Flames: Observations and Detailed Kinetic Modeling** .....  
Anthony M. Dean, Mau-Song Chou, and David Stern
6. **Formation of NO and N<sub>2</sub> from NH<sub>3</sub> in Flames** .....  
Richard J. Blint and Cameron J. Dasch
- Reactions of NH and NH<sub>2</sub> with O and O<sub>2</sub>: Theoretical Studies** ... . 103  
C. F. Melius and J. S. Binkley

## DETONATIONS AND IGNITION

8. **Fast Flames and Detonations** ..... 119  
John H. S. Lee
9. **Chemical Kinetic-Fluid Dynamic Interactions in Detonations** ..... 151  
Elaine Oran
10. **Chemical Kinetic Factors in Gaseous Detonations** ..... 175  
Charles K. Westbrook
11. **Review of Plasma Jet Ignition** ..... 193  
R. M. Clements
12. **Chemistry of Spark Ignition: An Experimental and Computational Study** ..... 205  
Thompson M. Sloane and John W. Ratcliffe

## KINETICS AND DYNAMICS

13. **Elementary Combustion Reactions: Laser Photolysis-Laser-Induced Fluorescence Kinetic Studies** ..... 225  
Frank P. Tully

<b>14.</b>	<b>Reaction Rate of OH and C<sub>2</sub>H<sub>2</sub> near 1100 Kelvin: Laser Pyrolysis–Laser Fluorescence Measurement</b> .....
	Paul W. Fairchild, Gregory P. Smith, and David R. Crosley
<b>15.</b>	<b>Measurement of the C<sub>2</sub>(a<sup>3</sup>Π<sub>u</sub>) and C<sub>2</sub>(X<sup>1</sup>Σ<sub>g</sub><sup>+</sup>) Disappearance Rates with O<sub>2</sub> from 298 to 1300 Kelvin</b> .....
	Steven L. Baughcum and Richard C. Oldenborg
<b>16.</b>	<b>Reaction of Carbon Monoxide with Oxygen Atoms from the Thermal Decomposition of Ozone: Effect of Added Gases</b> .....
	Sidney Toby, Shailesh Sheth, and Frina S. Toby
	<b>Author Index</b> .....
	<b>Subject Index</b> .....