

## CONTENTS

### I. Recent Developments in Controlled Thermonuclear Fusion Research at the University of California

*C. M. Van Atta*

Abstract .....	9
Introduction .....	9
1. The Magnetic Mirror Programme .....	10
(a) General Aspects of Magnetic Mirror Confinement .....	10
(b) Adiabatic Magnetic Compression and Heating of a Plasma .....	12
(c) Energetic Particle Injection .....	15
2. The Astron Programme .....	17
(a) Role of Relativistic Electrons in the Astron .....	17
(b) High-Current, High-Energy Electron Beam Injection System .....	18
(c) Reversal of the Magnetic Field by Rotating Electrons .....	19
(d) Present Status of the Astron Development .....	20
3. The Pinch Programme .....	20
(a) Linear and Toroidal Pinch Configurations .....	20
(b) The Homopolar Rotating Plasma Device .....	24
4. Plasma Waves and Oscillations .....	24
(a) Interaction of Plasma with .....	24
(b) Generation and Propagation of Torsional (Alfvén) Waves .....	25
5. Concluding Remarks .....	27
6. References .....	27
Summary .....	30
Résumé .....	33
Резюме .....	37
Resumen .....	40

### II. Controlled Thermonuclear Research at Princeton University

*Robert G. Mills*

Abstract .....	45
1. Chronology .....	45
2. Results of Research .....	47
(a) Theory .....	47
(b) Experiment .....	51
3. Bibliography of Princeton Publications .....	52
Summary .....	55
Résumé .....	57
Резюме .....	59
Resumen .....	62

### III. Plasma Accumulation by High-Energy Injection: the DCX Experiment

*Arthur H. Snell*

Abstract .....	65
Introduction .....	65
1. Recapitulation of Experimental .....	66
2. Diagnostic Methods .....	67
3. Observations .....	68
4. Recent DCX Configuration .....	73
Acknowledgements .....	75
References .....	75
Summary .....	75
Résumé .....	76
Резюме .....	78
Resumen .....	79