CONTENTS

Preface PART 1 — PHYSICAL INTRODUCTION		7	
		11	
1	States of Aggregation of Matter	11	
2	What is Plasma Physics	15	
3	Atoms, Molecules, Ions, Electrons	18	
4	Fundamental Concepts of the Kinetic Theory		
	of Gases	26	
5	Charged Particles in Electric and Magnetic		
	${f Fields}$	36	
PART 2 — INTRODUCTION TO PLASMA PHYSICS		41	
6	Interaction of Particles — Elementary		
	Processes in Plasma	41	
7	Fundamentals of the Kinetic Theory		
	of Plasma	51	
8	Thermal Properties of Plasma	58	
9	Plasma as a Source of Light	64	
10	Electrical Properties of Plasma	67	
11	Energy Balance of Plasma	72	
12	Macroscopic Dynamics of Plasma	74	
13	The Plasma/Solid Interface	81	
14	Plasma Diagnostics	86	
PART 3 — THE WORLD OF PLASMA		91	
15	Plasma in Nature and in the Universe	91	
16	Electrical Discharges in Gases	95	
17	Plasma Torches	101	
18	New High Temperature Manufacturing Pro-		
	cesses	104	
19	Technical Utilization of Some Magnetohydro-		
	dynamic Principles	107	
20	Controlled Thermonuclear Reactions	110	
Index		117	