



## TABLE OF CONTENTS

He	Total Scattering . . . . .	1
	Total Elastic Scattering . . . . .	2
	Momentum Transfer . . . . .	2
	Electronic Excitation . . . . .	3
	Total Ionization . . . . .	7
Ne	Total Scattering . . . . .	8
	Momentum Transfer . . . . .	8
	Electronic Excitation . . . . .	9
	Total Ionization . . . . .	10
Ar	Total Scattering . . . . .	11
	Momentum Transfer . . . . .	13
	Total Ionization . . . . .	13
Kr	Total Scattering . . . . .	14
	Momentum Transfer . . . . .	15
	Total Ionization . . . . .	16
Xe	Total Scattering . . . . .	16
	Momentum Transfer . . . . .	17
	Fluorescence . . . . .	18
	Total Ionization . . . . .	21
Li	Total Scattering . . . . .	21
	Total Elastic Scattering . . . . .	22
	Momentum Transfer . . . . .	22
	Electronic Excitation . . . . .	22
	Total Ionization . . . . .	23
Na	Total Scattering . . . . .	24
	Total Elastic Scattering . . . . .	24
	Momentum Transfer . . . . .	25
	Fluorescence . . . . .	25
	Total Ionization . . . . .	28
K	Total Scattering . . . . .	29
	Fluorescence . . . . .	30
	Total Ionization . . . . .	35
Cs	Total Scattering . . . . .	36
	Momentum Transfer . . . . .	37
	Total Ionization . . . . .	38



x		
Hg	Momentum Transfer . . . . .	39
	Electronic Excitation . . . . .	39
	Fluorescence . . . . .	40
	Total Ionization . . . . .	46
N	Total Elastic Scattering . . . . .	47
	Momentum Transfer . . . . .	47
	Fluorescence . . . . .	47
	Total Ionization . . . . .	48
O	Total Elastic Scattering . . . . .	48
	Momentum Transfer . . . . .	48
	Fluorescence . . . . .	49
	Total Ionization . . . . .	49
H <sub>2</sub>	Total Scattering . . . . .	50
	Total Elastic Scattering . . . . .	51
	Momentum Transfer . . . . .	51
	Rotational Excitation . . . . .	52
	Vibrational Excitation . . . . .	54
	Dissociation . . . . .	57
	Electronic Excitation . . . . .	59
	Total Ionization . . . . .	60
N <sub>2</sub>	Total Scattering . . . . .	61
	Momentum Transfer . . . . .	62
	Vibrational Excitation . . . . .	62
	Dissociation . . . . .	68
	Dissociative Ionization . . . . .	74
	Electronic Excitation . . . . .	74
	Fluorescence . . . . .	76
	Total Ionization . . . . .	82
CO	Total Scattering . . . . .	83
	Total Elastic Scattering . . . . .	84
	Momentum Transfer . . . . .	84
	Vibrational Excitation . . . . .	84
	Dissociative Ionization . . . . .	90
	Electronic Excitation . . . . .	91
	Total Ionization . . . . .	91
O <sub>2</sub>	Total Scattering . . . . .	92
	Total Elastic Scattering . . . . .	93
	Momentum Transfer . . . . .	93
	Vibrational Excitation . . . . .	94
	Dissociation . . . . .	95
	Dissociative Attachment . . . . .	98
	Dissociative Ionization . . . . .	102
	Electronic Excitation . . . . .	103
	Total Ionization . . . . .	106



H <sub>2</sub> O	Total Scattering . . . . .	107
	Momentum Transfer . . . . .	107
	Dissociation . . . . .	107
	Dissociative Attachment . . . . .	108
	Dissociative Ionization . . . . .	109
	Total Ionization . . . . .	110
CO <sub>2</sub>	Total Scattering . . . . .	111
	Momentum Transfer . . . . .	112
	Vibrational Excitation . . . . .	112
	Dissociation . . . . .	114
	Dissociative Attachment . . . . .	114
	Dissociative Ionization . . . . .	118
	Electronic Excitation . . . . .	119
	Total Ionization . . . . .	119
Bibliography . . . . .		121