

CONTENTS

	Preface	5
I.	Introduction	9
II.	Experimental procedures	12
	II.1 Traditional methods	12
	II.2 Time resolved methods	19
III.	Some Theoretical procedures	26
	III.1 General	26
	III.2 <i>Ab initio</i> calculations	28
	III.3 Semi-classical calculations	29
	III.3a General	29
	III.3b An iterative RK (IRK) method	34
	III.4 Calculation of spectroscopic constants and radiative lifetimes from <i>ab initio</i> data	41
IV.	Results and discussion	45
	IV.1 The SiO molecule	45
	IV.2 The NO molecule	52
	IV.3 The CH ⁺ radical	53
	IV.4 The CH molecule	56
	IV.5 The limiting curve of dissociation and an extension ..	58
	References	62
Appendices		
I.	About the adiabatic approximation and electronic isotope shift	
II.	The polarization propagator	