3.1.4 The Penning reaction
3.1.5 The Duffenduck reaction
3.2 The ionization rates and rate coefficients
3.3 Penning ionization rate and rate coefficient
3.4 Duffenduck ionization rate and rate coefficient
3.5 Electron impact ionization
3.6 Recombination rates and rate coefficients
3.6.1 Radiative recombination rate
3.6.2 Dielectronic recombination rate
3.7 Fractional abundance
3.8 Results and discussions

CHAPTER 4: EXCITATION DUE TO COLLISION

PROCESSES IN THE CVL DISCHARGE

4.1 Elastic and Inelastic collisions
4.2 Excitation rates and rate coefficients
4.2.1 Electron impact excitation (EIE)
4.2.2 Penning excitation
4.2.3 The Duffenduck excitation
4.3 Results and Discussions

CHAPTER 5: SPATIAL DISTRIBUTION OF DISCHARGE

PARAMETERS AND TEMPORAL

PROFILES

5.1 A system for study
5.2 Skin effect
5.3 Radial profiles of spectral emission
5.4 Radial profiles of densities
5.5 Temporal profiles
CHAPTER 6 : INTENSITY DISTRIBUTION ACROSS THE
OUTPUT LASER BEAM

6.1 Increasing laser power
6.2 Annular shape of the laser beam
6.3 Power calculations
6.4 The power delivered by volume element dV of the
discharge tube at laser wave length
6.5 Computation of total power delivered by the CVL
discharge
6.6 Results and Discussions

CHAPTER 7 : STUDY OF PROPERTIES OF CuII LASER
DISCHARGE

7.1 Introduction
7.2 Radial profiles of spectral emission
7.3 Computation of total power output

CHAPTER 8 : INVERSION LIFETIME OF THE LASER
TRANSITION

8.1 Copper vapor laser : A Cyclic Laser
8.2 Inversion lifetime
8.3 Population and depopulation of laser states
8.4 Population inversion density of the transition
8.5 Results and Discussions

CHAPTER 9 : SCOPE OF THE WORK

CHAPTER 10 : SUMMARY AND CONCLUSIONS

10.1 Summary of the work
10.2 Conclusions