

4. Conclusions

Dissociation energies of Cu^{63}H^1 molecule have calculated for ground $X^1\Sigma^+$ state and excited state $A^1\Sigma^+$ and showed that bond length (r) has an effect upon the values of the dissociation energies, where the dissociation happens when (r) approach from infinity values. that meaning near from experimental values. The potentials of Cu^{63}H^1 molecule by using Varshni function and Extended Rydberg function for ground $X^1\Sigma^+$ state and excited state $A^1\Sigma^+$ are in good agreement with experimental results and the important notice that bond length (r) with spectroscopic constants have an effect upon values of the potential.

References

- [1] G. Herzberg, Spectra of diatomic molecules, Van National Reinhold Company. New York,(1950).
- [2] Teik-Cheng L., "Obtaining The Varshni Potential Function Using The 2-Body Kaxiras–Pandey Parameters", J. Serb. Chem. Soc.V. 74, No.12, P.1423–1428, (2009).
- [3] J. N. Murrell and K. S. Sorbie, Faraday Transactions, 70(1974) 1152.
- [4] P. Huxely and J. N. Murrell, J. Chem. Soc. Faraday, 7A, part 2 (1983) 323.
- [5] Schadee A., J. Quant. Spectrosc.Radiat.Transf., (1978).
- [6] Teik-Cheng L., "Obtaining The Varshni Potential Function Using The 2-Body Kaxiras–Pandey Parameters", J. Serb. Chem. Soc.V. 74, No.12, P.1423–1428, (2009).
- [7] K. P. Huber G. Herzberg, Molecular Spectra and Molecular Structure of diatomic molecules, Van National Reinhold Company. New York,(1979).
- [8] V.M. Rao, M.L.P. Rao and P.T. Rao Dissociation energy of the ground state of the CuH molecule' JQSRT, Vol.25, 6, 1981, Pages 547–549 (1981)
- [9] C.M. Marian, Theoretical study of the spectra of CuH and CuD. J. Chem. Phys. (1991), 94(8):5574-5585.

Author Profile



Dr. Adil N. Ayyash, Date of Birth 30/8/1978 in Baghdad, Specialization (Molecular Physics), Work Address: (Physics Department, College of Science, University of Anbar, Iraq). Scientific Certification: Ph.D in Molecular physics (2014) College of Science, AL-Mustansriyah University, Baghdad, Iraq. M.Sc in Materials Science Physics (2004) College of Science, AL-Mustansriyah University, Baghdad, Iraq



Younus Khalaf Jabur, Date of Birth 01/07/1975 in Anbar, Specialization (Materials physics), Work Address: Renewable Energy Research Center with Grant No. RERC-TP28., University of Anbar, Iraq. Scientific Certification: M.Sc. in Materials Science physics (2005) College of Science, AL-Mustansriyah University, Baghdad, Iraq.