# CALCULATION OF VARSHNI POTENTIAL, HUA POTENTIAL AND DISSOCIATION ENERGY FOR ($X^1\Sigma^+$- $A^1\Pi$) BAND SYSTEM OF SiO MOLECULE IN SUPERNOVA EJECTA

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## ABSTRACT

The present work concerns by study of spectroscopic properties for Silicon monoxide SiO which is founded in supernova ejecta type II. Dissociation energy had been calculated theoretically for ground state $X^1\Sigma^+$ and excited state $A^1\Pi$ of SiO molecule by Herzberg relation and by depending on spectroscopic constants for this molecule. Our results are compared with experimental results and appear good convergence, also showed an important effect for bond length (r) for occur the dissociation. The potential of this molecule is studied in this work by using more of potential function as (Varshni potential function) and (Hua potential function), the results appear that potential curve of SiO molecule for ground state $X^1\Sigma^+$ and excited state $A^1\Pi$ converge with experimental results, and getting on minimum value of potential in ($r=r_e$), but the dissociation happen when (r) approach from ($\infty$).

**KEYWORDS:** Varshni and Hua Function, Dissociation Energy, ($X^1\Sigma^+$ - $A^1\Pi$) Band System of SiO Molecule