**FIRST PRINCIPES STUDIES of STRUCTURAL, ELASTIC and THERMODYNAMIC PROPERTIES of HoAg**

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| **ABSTRACT**The study examined the properties of HoAg, encompassing its structural, elastic, electronic, and thermodynamic characteristics, through first-principles calculations. This investigation yielded insights into fundamental physical parameters such as the lattice constant, bulk modulus, pressure derivative of bulk modulus, Zener anisotropy factor, Poisson’s ratio, Young’s modulus, and isotropic shear modulus, employing the generalized density approximation (GGA) method. Additionally, the thermodynamic properties of HoAg were assessed using the quasi-harmonic Debye model and temperatures ranging from 0-1000 K. The results obtained align consistently with both experimental and theoretical values. |

# Keywords: Pressure effects, HoAg, Cubic, Thermodynamic properties, Elastic constants.