# PHYSICAL CHARACTERISTICS of METALLIC DyAg in B2 STRUCTURE: A FIRST-PRINCIPLES INVESTIGATION

**Berna Çatıkkaş,**

**Hatay Mustafa Kemal University, Department of Physics, Hatay, TÜRKİYE**

**0000-0002-0566-5015**

**Yasemin Oztekin Ciftci**

**Gazi University, Department of Physics, Teknikokullar, Ankara, TÜRKİYE**

**0000-0003-1796-0270**

|  |
| --- |
| **ABSTRACT**The structural, elastic, electronic and thermodynamic properties of DyAg were investigated using the first-principles calculations. Presented herein are the outcomes pertaining to fundamental physical parameters, encompassing the lattice constant, bulk modulus, pressure derivative of bulk modulus, Zener anisotropy factor, Poisson’s ratio, Young’s modulus, and isotropic shear modulus by using generalized density approximation (GGA) method. The thermodynamic properties of DyAg were determined using the quasi-harmonic Debye model a range of 0-60 GPa and temperatures spanning 0-1000 K. The obtained results align with both experimental and theoretical values. |

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