# AB INITIO STUDY OF BULK AND SURFACE PROPERTIES OF CoPt $L1_0$ ALLOY

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**ABSTRACT.** The CoPt binary alloy, due to its tetragonal $L1_0$ structure, shows a strong magnetic anisotropy, and is a good candidate for ultra high density informatics storage device. We present in this work ab initio calculations of the stability, and magnetic properties of CoPt $L1_0$ alloy in the ferromagnetic states, and we have focused our study on the (001) surfaces and the influence of stacking faults. Our results show that magnetism is enhanced in surface.

**KEYWORDS:** *Ab initio, binary alloys, CoPt L10*