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**MAGNETIC PROPERTIES OF MIXED SPIN (1, 2)
HEXAGONAL ISING NANOWIRE SYSTEM**Mehmet ERTAŞ *,¹, Mustafa KESKİN¹¹ *Department of Physics, Faculty of Sciences, Erciyes University, 38039 Kayseri, Turkey.*

Abstract: Magnetic nanowire systems have attracted considerable attention not only because of their academic interest, but also due to the technological applications; in particular, in the areas of magnetic recording media, spin electronics, optics, sensors and thermo electronics devices. On the other hand, in the last two decades, mixed spin Ising systems have been intensively studied. The reasons are as follows: (i) the systems have less translational symmetry than their single spin counterparts. (ii) The study of these systems can be relevant for understanding the bimetallic molecular system-based magnetic materials. (iii) Mixed spin Ising systems provide good models to investigate the ferromagnetic materials. In this work, by utilizing the framework of the effective field theory with correlation, magnetic properties of mixed spin (1, 2) hexagonal Ising nanowire system is studied in detail. The effects of Hamiltonian parameters on hysteresis and compensation behaviors are also discussed extensively. Finally, the results are compared with some experimental and theoretical works and found in a qualitatively good agreement.

Keywords: *Mixed spin (1, 2) hexagonal Ising nanowire; the effective field theory; hysteresis and compensation.*

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