

Abstract Submitted  
for the MAR17 Meeting of  
The American Physical Society

**A Phenomenological Model For The Spin Stiffness Of A Half-metallic Ferromagnet**<sup>1</sup> RAUL CHURA, Universidad Nacional de San Antonio Abad del Cusco (UNSAAC), Cusco, Peru., KEVIN BEDELL, Boston College — By using the Fermi Liquid Theory for Spin Polarized Systems, more specifically, by using the linearized form of Landau Silin Kinetic Equation, and after considering an appropriate approximation, we have obtained the dispersion relationships describing the collective modes for the spin waves in a Half Metallic Ferromagnetic (HMF) material. Our results predict the existence of a gapless mode for the spin dynamics of a HMF, in agreement with experiment. In addition, our calculations allowed us to get a phenomenological formula for the spin stiffness of HMF materials, which being entirely in terms of band theory and Landau interaction parameters, allowed us to test that formula for those HMF materials for which we were able to find, in the available literature, the required data. For these materials our model is consistent with experiment.

<sup>1</sup>Work supported by grant Number CANON-CU-005-2013 at UNSAAC, Cusco, Peru.

Pastor Chura  
Univ Nac'l Mayor de San Marcos

Date submitted: 13 Nov 2016

Electronic form version 1.4