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Abstract
The purpose of the paper is the study of magneto-optical properties of ferrite in high frequencies and its application in microwave devices. Another aspect involved in the paper is the integration of many passive components on chips and the knowledge of electromagnetic properties of the ferrite, which is important to show their influence on the development of modern technology connected with miniaturization of devices in telecommunication field.

In a medium consisting of ferrite magnetized vertically, the wave (RF magnetic field) is elliptically polarized left and rotates in the same direction as the precession gyromagnetic causing a strong interaction of the electromagnetic wave with the ferrite. And when the magnetic field rotates in the opposite direction of the gyromagnetic precession, it produces a weak interaction with the material. Gyromagnetic resonance is one of important phenomena which are operated in the range of high frequency electromagnetic spectrum, wherein the ferrites are used.

Our objective is then to study the magneto-optical properties of ferrites in hyperfrequencies when they are polarized by a static magnetic field is translates in particular into the phenomenon of non-reciprocity.
It gives the material its ability to respond differently to an electromagnetic wave according to its polarization. In addition, it allows separate devices into two distinct classes: those who work at resonance (isolators, filters ...), and those who work outside the resonance (circulators. ..). Therefore the cyclotron resonance is related to the movement of precession of the magnetic moment of the electron spin around the direction of the internal magnetic field.

References

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Figures

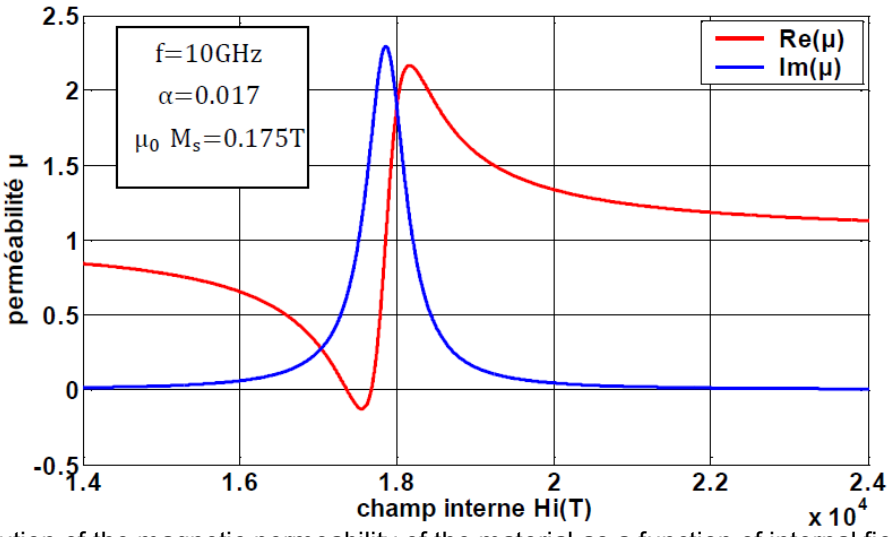

Figure1: Evolution of the magnetic permeability of the material as a function of internal field (according to the model Polder)