of Zn content. This behaviour could be explained on the basis of decrease in lattice parameter due to increase in Zn concentration. The electrical conductivity of $Ni_{1-x}Zn_xFe_2O_4$ thin films has been investigated as a function of temperature, using two probe method. Using the temperature dependence of electrical conductivity data, the mechanism of electrical conduction was discussed. We also observed that the values of electrical conductivity are depending on Zn concentration Ni – Zn ferrite films deposited by spin coating method might have a high potential for application as transparent magnetic semiconductors.

PAMS-P16: Evolution of materials for clothing

Zoreslava Zakhozhai

Institute for Modern Technologies, Kyiv National University of Technologies and Design, Kyiv, Ukraine

The world's dynamic evolution of textile fibers and fabrics has been considered. An ancient man taught primitive way of processing skins of animals due to the need of clothing. Wool, cotton, linen were the first natural materials for clothes. China was mastered the secret production of natural silk (protein fibers) on BC. Since the late nineteenth century a wide intervention of chemistry and physics in a structure of macromolecules take place. In particular, the technological processes were developed for synthetic fibers based on natural polymers (viscose, acetate, etc). In the mid-twentieth century the technological processes were developed for synthesis of fiber-monomers, polymers, melts of synthetic polymers (nylon,

polyester, polyamide, polyacrylonitrile fibers). The current state of chemical fibers production began from the end of twentieth century. The IV generation of so-called "fibers for future" innovative materials were created, such as nanofibers, "intelligent textiles". Properties of the modern "intelligent textiles" responded to changes in the parameters of the internal and external environment [1]. Nowadays, metamaterials make the real revolution in evolution of properties [2]. The main feature of these materials is negative refractive index (Fig. 1), which takes place at simultaneous negative dielectric and magnetic permeabilities. Creation and using the metamaterials has very broad application prospects.

[1]. George G. Bogdanov, Zoreslava V. Zakhozhai. Evolution of Materials for Clothing. Kyiv, KNUTD, 2009 - 280 pages.
[2]. http://en.academic.ru/dic.nsf/enwiki/11597380.