

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ  
ФАКУЛЬТЕТ ІНОЗЕМНОЇ ФІЛОЛОГІЇ  
ТА СОЦІАЛЬНИХ КОМУНІКАЦІЙ**



# **СОЦІАЛЬНО-ГУМАНІТАРНІ АСПЕКТИ РОЗВИТКУ СУЧАСНОГО СУСПІЛЬСТВА**

**МАТЕРІАЛИ V ВСЕУКРАЇНСЬКОЇ НАУКОВОЇ КОНФЕРЕНЦІЇ СТУДЕНТІВ,  
АСПРАНТІВ, ВИКЛАДАЧІВ ТА СПІВРОБІТНИКІВ**

**(Суми, 20-21 квітня 2017 року)**

**Суми  
2017**

any need for human intervention have been used in a range of decision support applications.

Capabilities of these intelligent agents include knowledge sharing, machine learning, data mining, and automated inference. A range of AI techniques such as case based reasoning, rough sets and fuzzy logic have also been used to enable decision support systems to perform better in uncertain conditions.

## **THE PROCESS APPROACH AND PROCESS MODELING**

I. Rybalka – *Sumy State University, group PhD-62*

A. M. Dyadechko – *EL Adviser*

The aim of the research is to examine existing approaches to process and functional management of the organization and the benefits of process description.

Organizations spend a lot of money and time to manage their functional hierarchy. However, the work does not move up and down along functional hierarchy, it flows through the organization as a set of processes that most organizations do not control, and take no responsibility for them.

The differences and the benefits of functional and process approaches are the following:

- 1) with a process approach there is a customer orientation (the result), that is CRM- approach; owner submission process; priority is made on the functions that are important for other stakeholders, active cooperation with stakeholders; higher management flexibility; focus on cost (the cost of the process), its duration and quality; transparency of operations;
- 2) with a functional approach, we focus on the head (head of subordination); priority is made on the functions in which his unit is interested; there is a tendency to "bureaucracy" as a consequence, the loss of managerial flexibility, low speed decision-making, loss of information; the contradiction between the goals of functional units.

Process approach is the most important feature of perfect management. This approach is used as a base in the international standard ISO 9000. The process approach implemented through process modeling is a description of processes and their optimization.

The transition to process-oriented management organization based on the requirements of ISO 9001: 2015 will allow to list the main processes. It will also allow to draw conclusions about the rationality of

resources, size and personnel loading, etc., identify missing and duplicate processes and make appropriate adjustments, define the functions of each unit, establish relationships between units and their functions.

## **INFLUENCE OF ANNEALING TEMPERATURE ON MAGNETORESISTANCE OF ULTRATHIN FE AND CO FILMS**

D. I. Saltykov – *Sumy State University, group PhD- 62*

A. M. Dyadechko – *EL Adviser*

Recently, studies of the structures with the spin-tunnel magnetoresistance effect attract a particular interest. The use of the elements based on tunnel magnetoresistance will allow to create new devices for spintronics, increase the recording density and the speed of information read-out.

The structures of tunnel magnetoresistance include ultrathin films of ferromagnetic metals and alloys. In such samples the features of magnetoresistance are caused by the presence of island structure.

The purpose of the study is to establish the influence of annealing temperature and size effects on the value of tunnel magnetoresistance of the island films of iron and cobalt.

As a result of experiments the single-layer Co and Fe films (1-30) nm thick were obtained in the vacuum chamber at the pressure of residual atmosphere  $10^{-4}$  Pa. The film condensation was carried out by evaporation of metals with purity not less than 99.98% using the electron-beam gun. The thickness was controlled by the quartz resonator method.

Measurements of the magnetoresistance and thermomagnetic treatment of the films were carried out in a special device under the conditions of ultrahigh oil-free vacuum ( $10^{-6} \div 10^{-7}$ ) Pa in the temperature range from 150 to 700 K.

The tunnel magnetoresistance was implemented for the freshly condensed Co and Fe films in the thickness range of  $d_{\text{Co}}= 5-25$  nm and  $d_{\text{Fe}}= 7-30$  nm. The maximum value of TMR at room temperature was 1% for the fresh condensed films ( $d_{\text{Fe}} = 17$  nm) and Fe films annealed at the temperature of 520 K ( $d_{\text{Fe}} = 8$  nm). Annealing of Co films in the range of effective thickness of 15-25 nm at the temperature of 700 K led to the emergence of anisotropic magnetoresistance. The annealing did not change the type of magnetoresistance for Fe films, although its value decreased to 0.1%.