помех. Одним из перспективных методов селекции сигналов ЧР является метод вейвлет-преобразований.

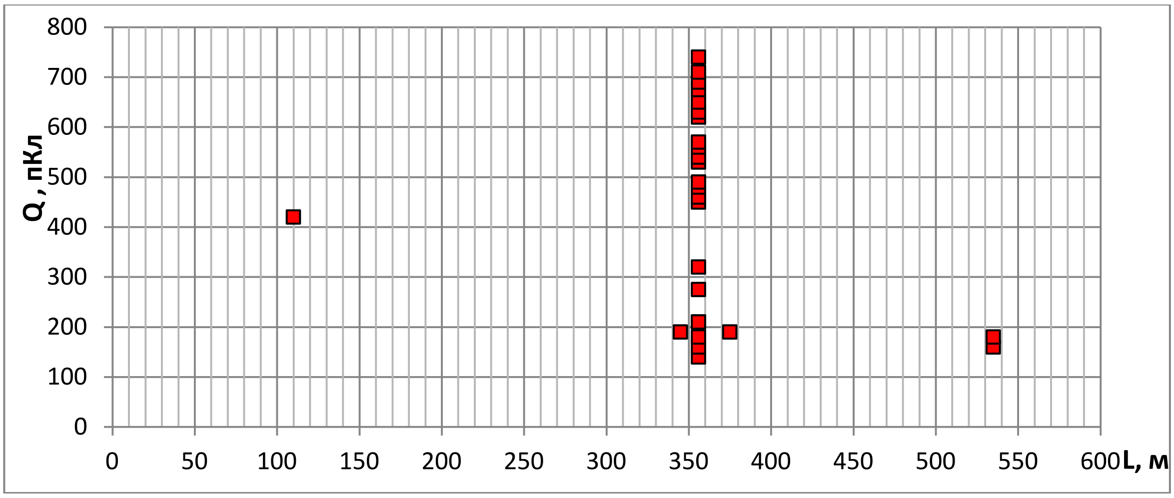

Рис 1. Карта распределения ЧР

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"LIFE" OF THE SPIRAL MAGNETIC DOMAIN IN A VARIABLE MAGNETIC FIELD

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Dynamic spiral domains (SD) are formed in the films with perpendicular magnetic anisotropy in the alternating magnetic field, which "live" for a while, and then disappear. They were studied theoretically for dynamic [1] and static [2-5] cases. The main problem of the models is that only one parameter of the structure varies whereas the other parameters fixed in both dynamic and static cases. A disadvantage of the model [1] is the fact that disappearance of SD occurs by reducing its size, whereas in experiments, this scenario is not implemented.

As a model was chosen a single SD having domain boundaries with a sinusoidal transverse wave (Fig.1). The domains with different direction is perpendicular to the sample surface of magnetization are shown in white and gray. The width of the domain wall is considered to be zero. This approximation is valid for films with a large quality factor.

Dissipative model of spiral domain [1] has been extended to the case when the geometric parameters of SD can change with the time: a spiral period - p; domain width - d; radius of the inner core - r_0; twist angle of the outer ending of the domain; the amplitude of the transverse distortion of domain shape. Some of these domain parameters were fixed to investigate the influence of different deformation of domain form on its evolution, and was solved numerically by Gere's method. It was chosen because this system of equations is stiff.

The model of SD with the possibility of deformation allows to extend the number of evolution scenarios of the dynamic SD in an alternating magnetic field. It was found that the appearance of the empty area within the SD is factor of instability and leads to the disappearance of the domain. This mechanism SD destruction was confirmed by experiments [6]. In addition, is taking into account the change in the width of the domain and its period, new scenarios of SD destruction was realized by transforming it into a giant or a cylindrical domain, or in a giant ring domain, with their instant collapse after that. In the experiments there is always the immediate disappearance of SD, which has a finite size, so it can be assumed that obtained evolution scenario of the SDs in the model corresponds to those observed in the experiment.

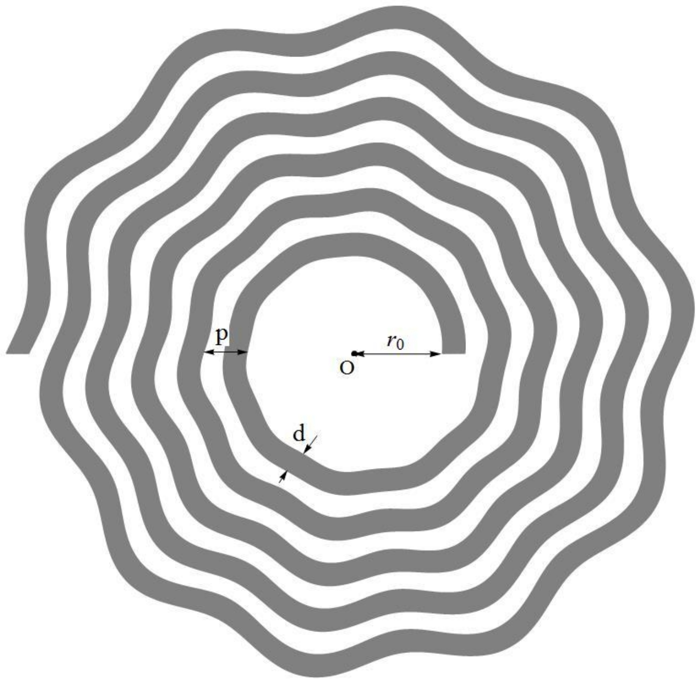

Fig. 1. Geometry of the spiral domain.

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МАГНИТНЫЕ СВОЙСТВА СЛОЕВ Ni_xFe_{100-x} В СОСТАВЕ ОБМЕННО-СВЯЗАННЫХ ПЛЕНОЧНЫХ СТРУКТУР ТИПА $FeMn/Ni_xFe_{100-x}$

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MAGNETIC PROPERTIES OF Ni_xFe_{100-x} LAYERS IN EXCHANGE-COUPLED $FeMn/Ni_xFe_{100-x}$ FILM STRUCTURES

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The influence of composition on crystalline structure, exchange bias, magnetic hysteresis, and spontaneous magnetization of ferromagnetic $\mathrm{Ni}_x\mathrm{Fe}_{100-x}$ layers coupled with the antiferromagnetic FeMn layer was investigated.

Обменное смещение представляет собой одно из наиболее интересных свойств пленочных структур, включающих взаимодействующие ферромагнитные и антиферромагнитные слои. Его изучение, в том числе в связи с потенциалом практического применения в устройствах микроэлектроники и спинтроники, является предметом многих научных публикаций [1]. Цель настоящей работы состояла в систематическом исследовании кристаллической структуры и магнитных свойств слоев системы $\mathrm{Ni}_x\mathrm{Fe}_{100-x}$, находящихся в составе многослойных пленок в обменной связи с антиферромагнитным слоем FeMn.

Пленки $\mathrm{SiO_2/Ta(5)/Fe_{20}Ni_{80}(5)/Fe_{50}Mn_{50}(20)/Ni}_x\mathrm{Fe}_{100-x}\mathrm{(40)/Ta(5)}$ (в скобках указана толщина слоев в нм) были получены на стеклянных подложках