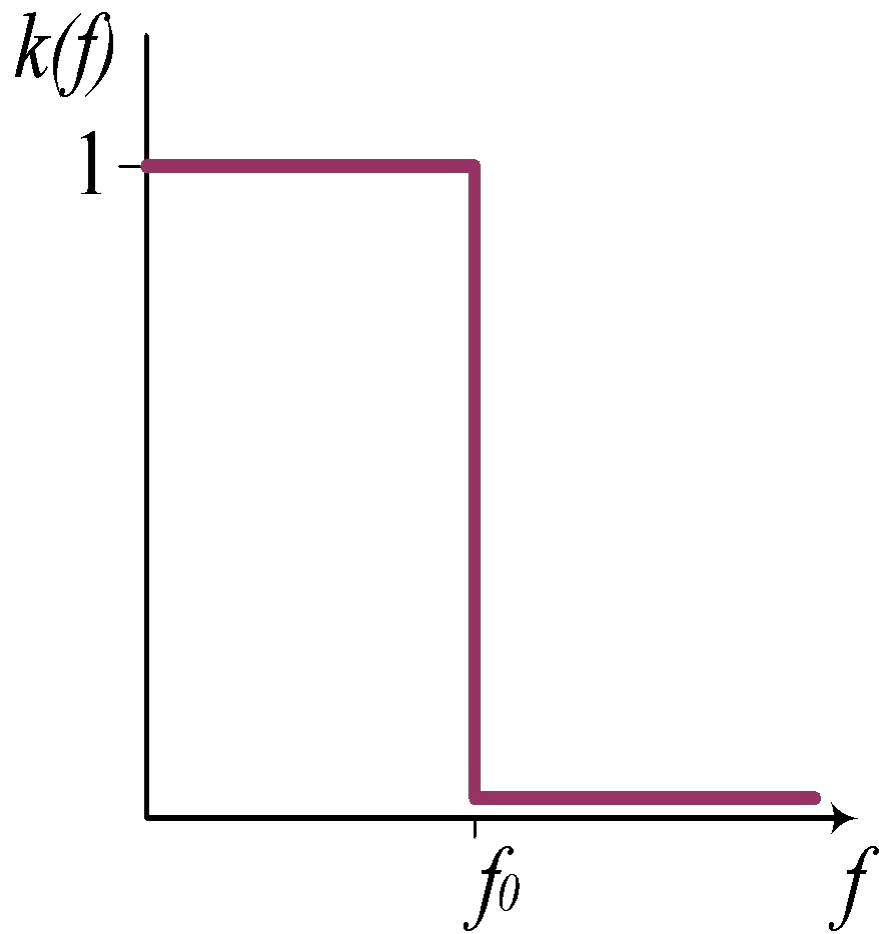
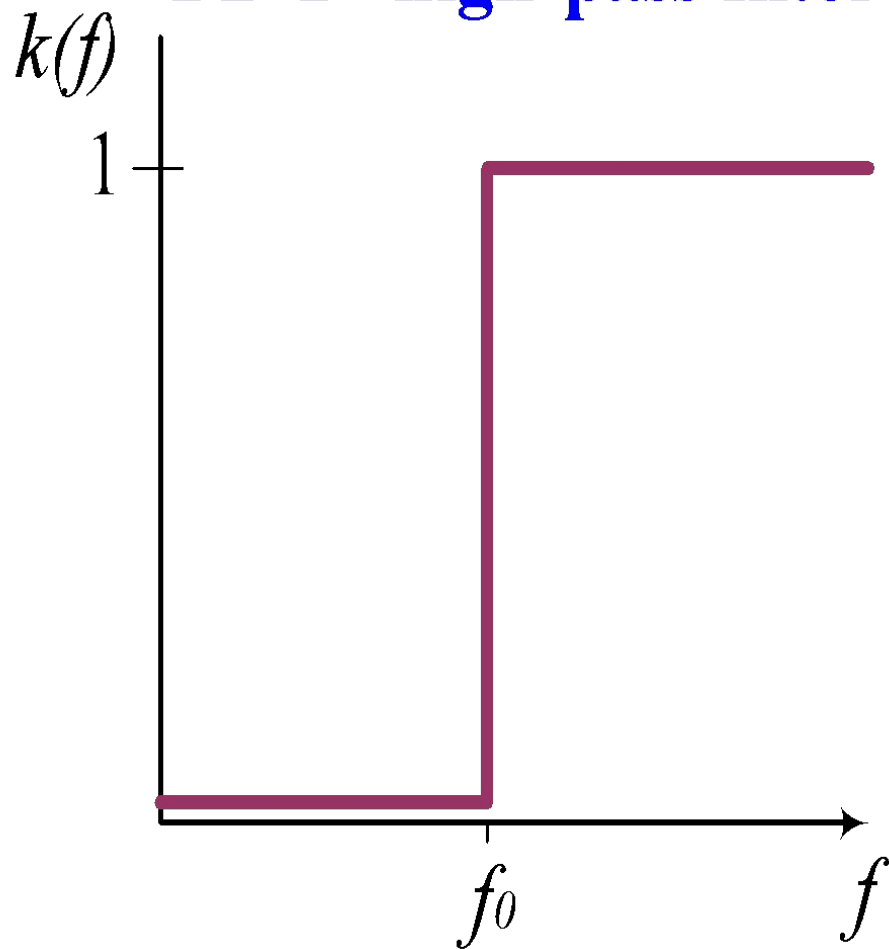


Цифровые фильтры

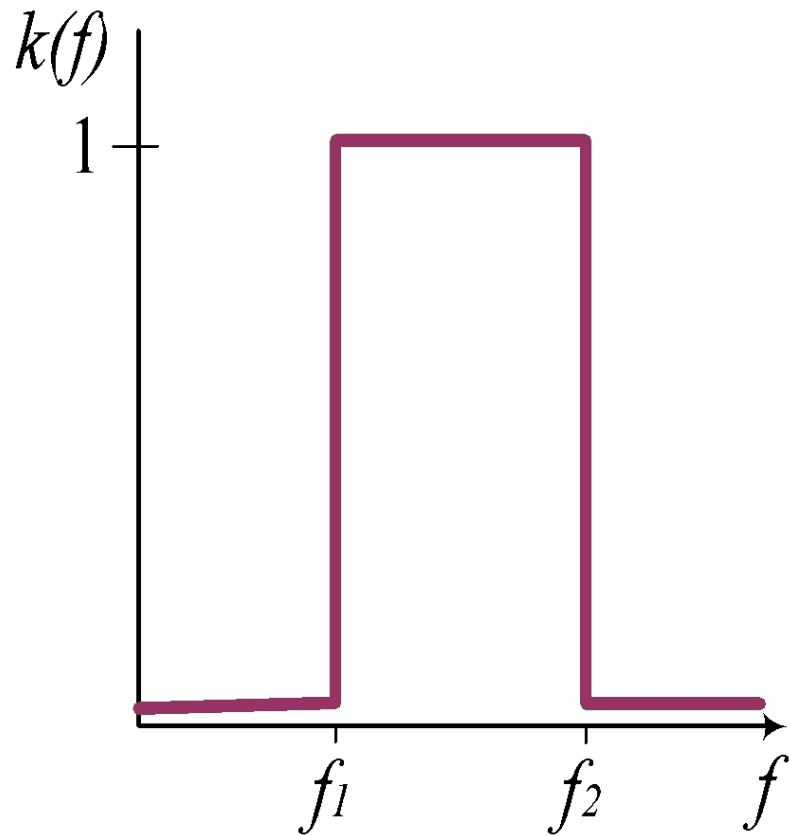
$\Phi H \Psi$ - low-pass filter



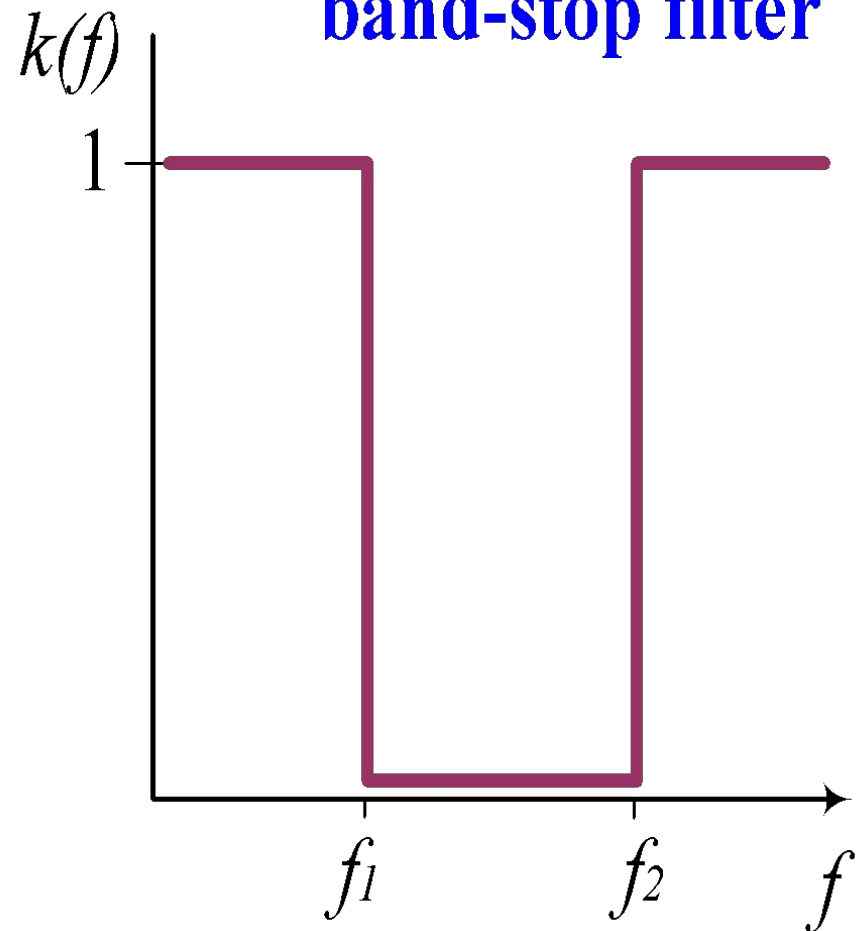
$\Phi B \Psi$ - high-pass filter

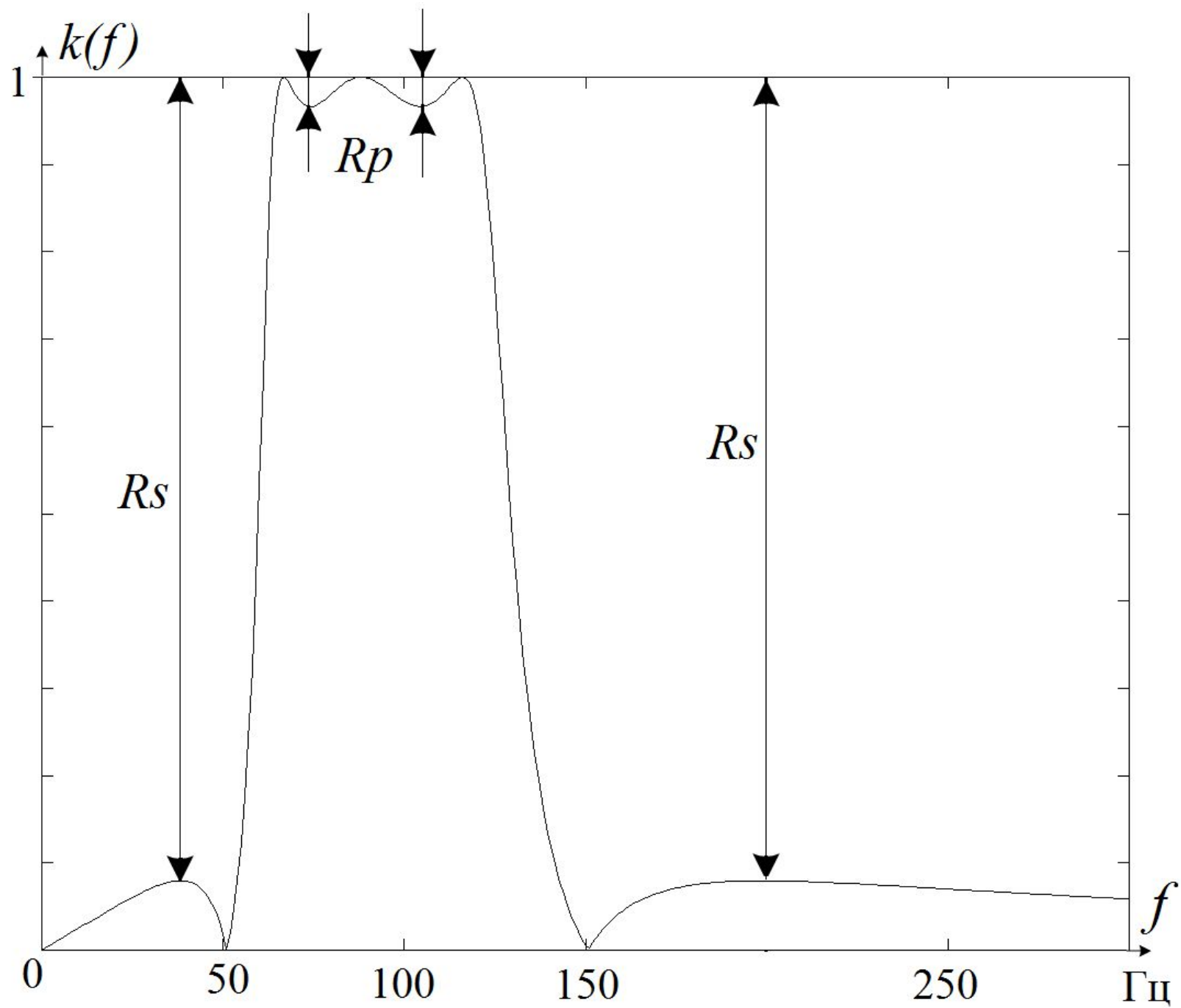


полосовой - band-pass filter



режекторный - band-stop filter

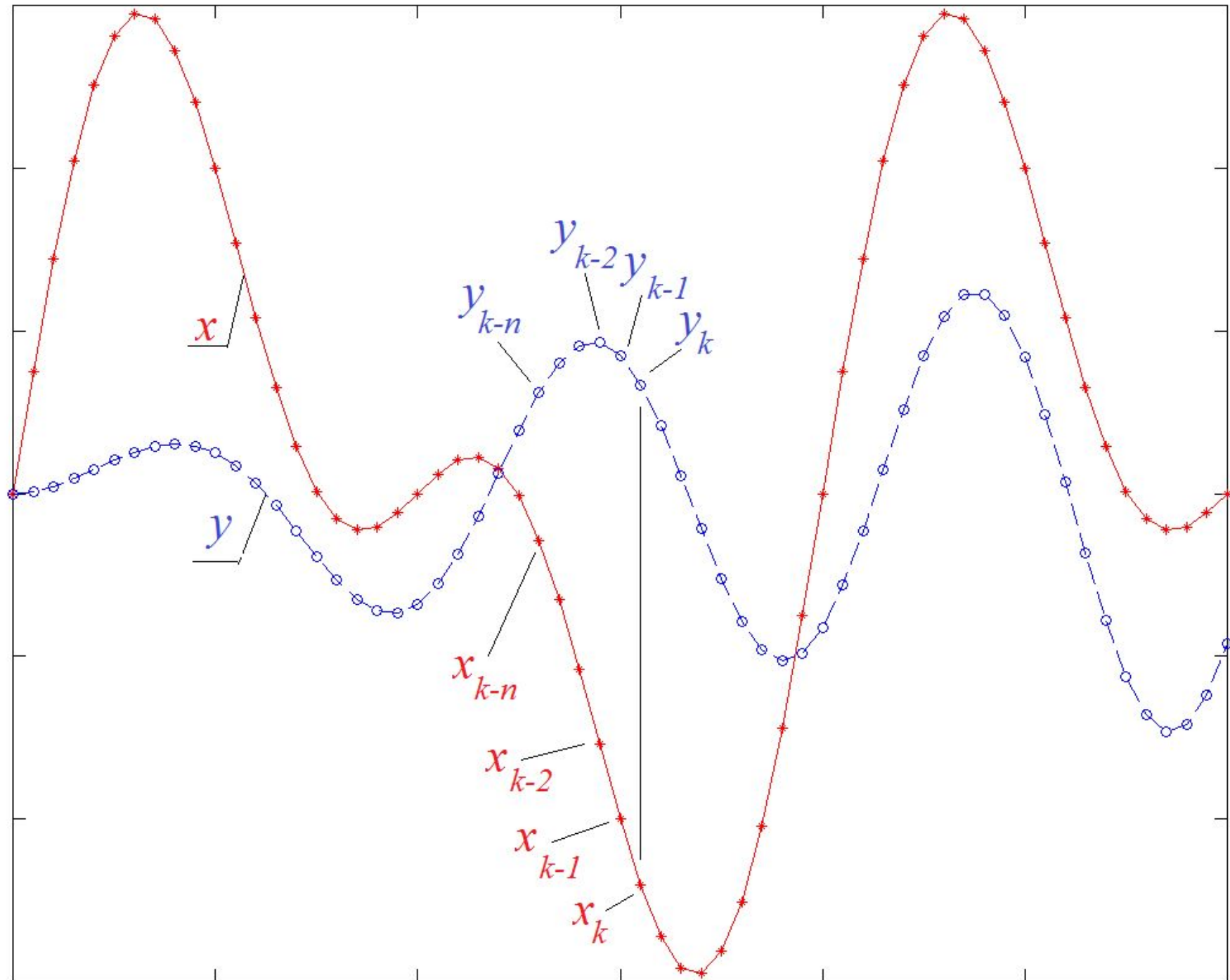


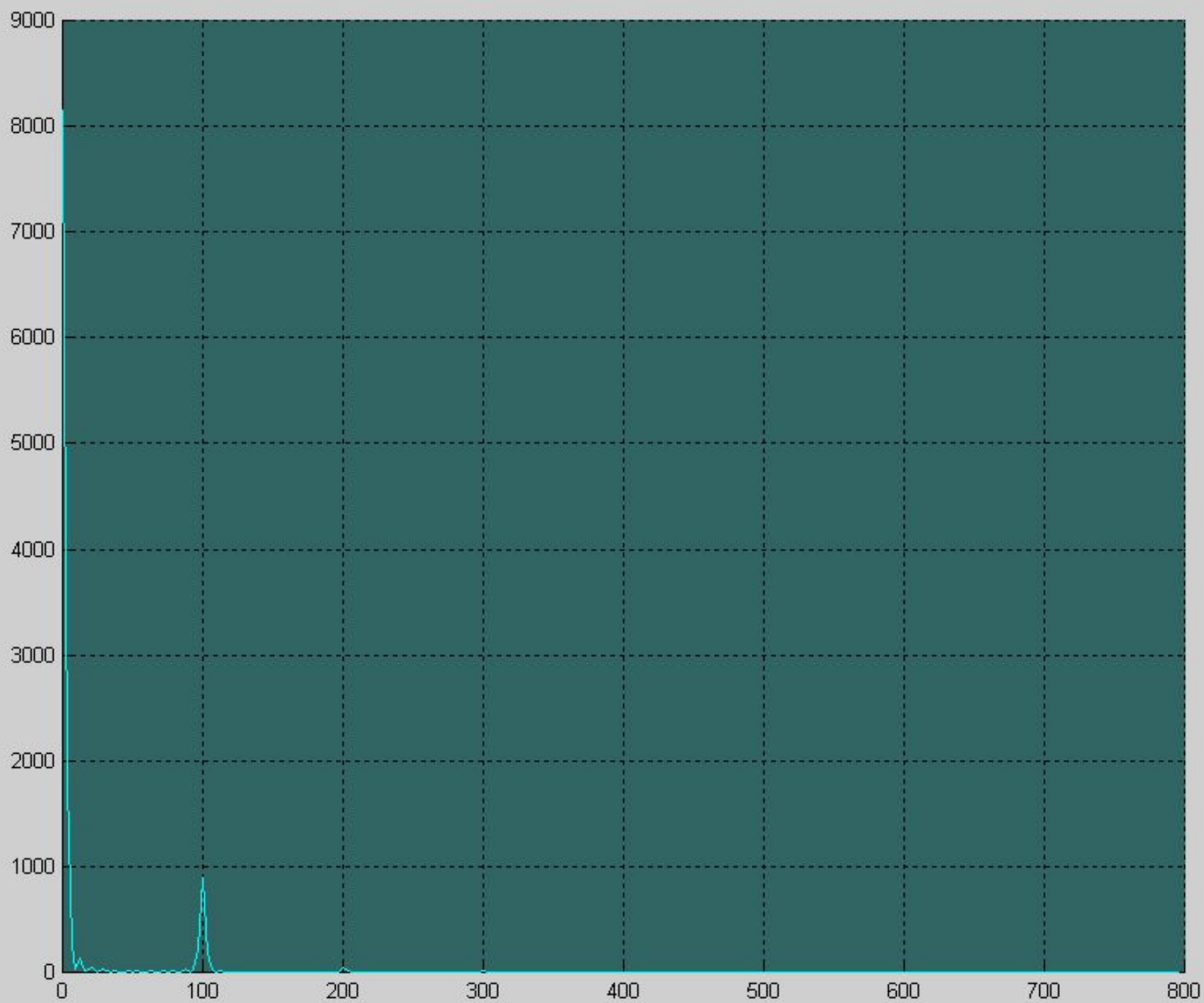


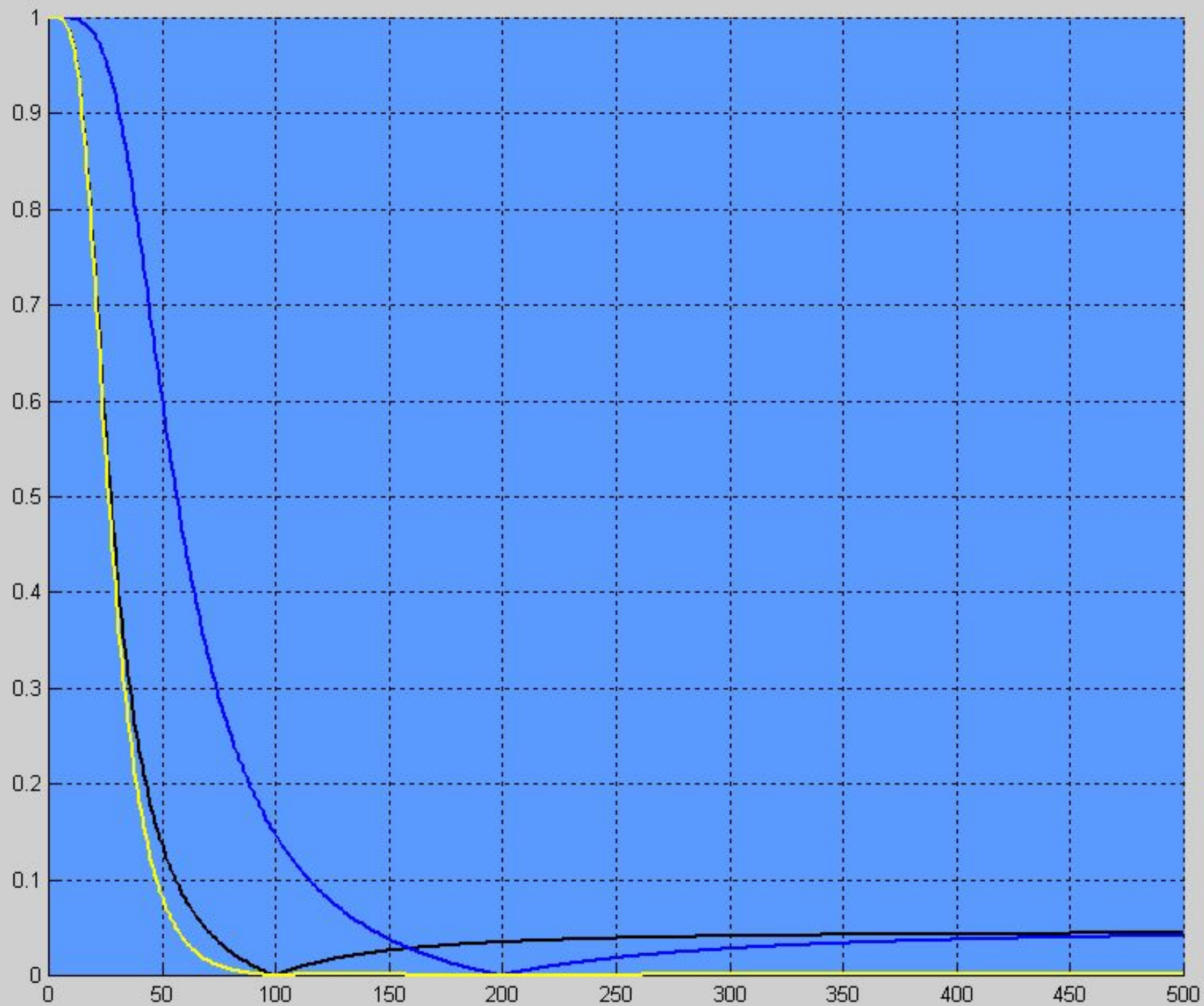
$$\begin{bmatrix} a_1 \\ a_2 \\ \boxtimes \\ a_{n+1} \end{bmatrix}^T \cdot \begin{bmatrix} y_k \\ y_{k-1} \\ \boxtimes \\ y_{k-n} \end{bmatrix} = \begin{bmatrix} b_1 \\ b_2 \\ \boxtimes \\ b_{n+1} \end{bmatrix}^T \cdot \begin{bmatrix} x_k \\ x_{k-1} \\ \boxtimes \\ x_{k-n} \end{bmatrix}$$

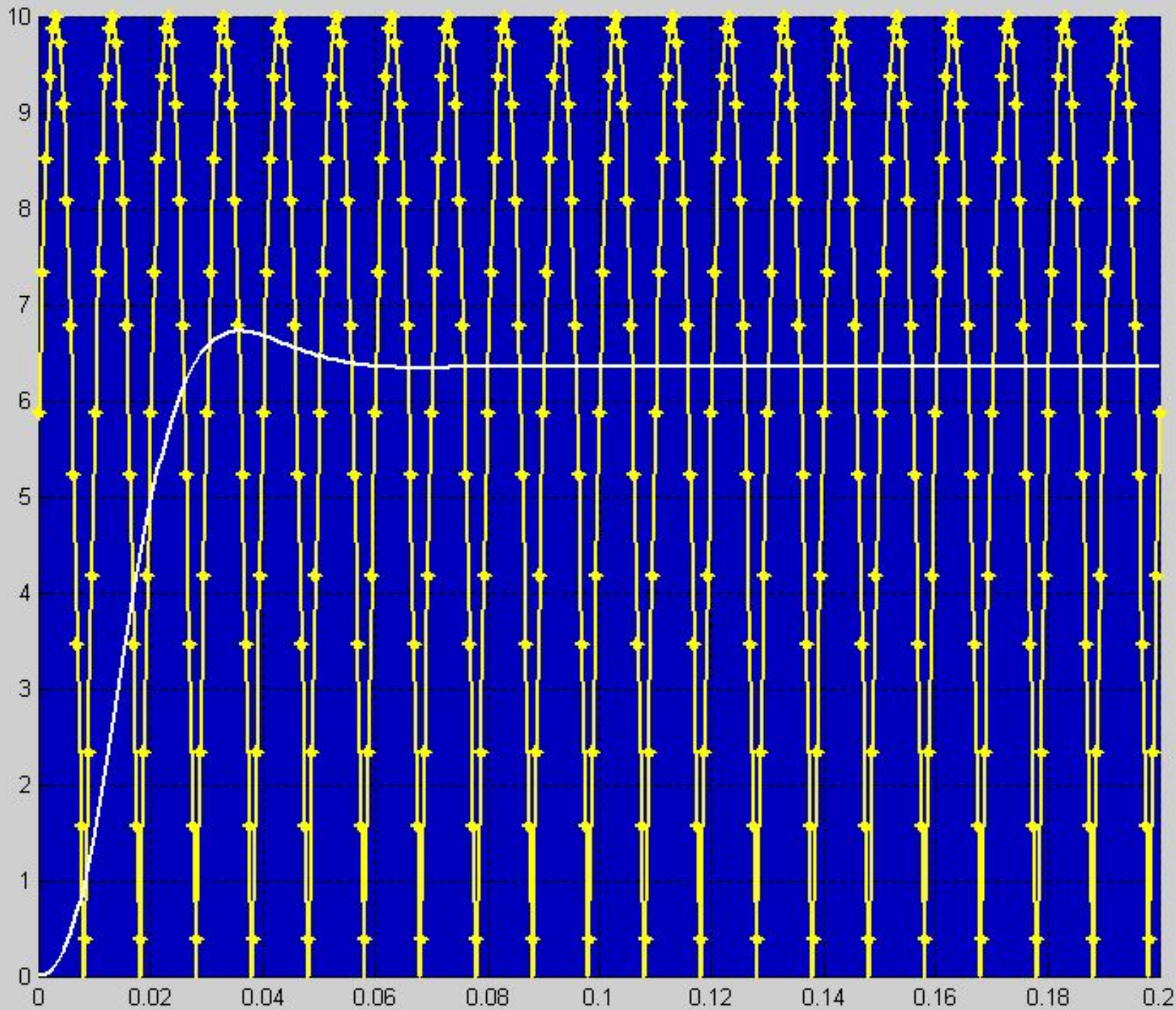
$$a_1 \cdot y_k = b_1 \cdot x_k + b_2 \cdot x_{k-1} + b_3 \cdot x_{k-2} + \dots + b_{n+1} \cdot x_{k-n} -$$

$$- a_2 \cdot y_{k-1} - a_3 \cdot y_{k-2} - \dots - a_{n+1} \cdot y_{k-n}$$









Выделение постоянной составляющей (замер среднего значения)

```
fs = 1600;%частота дискретизации
[b1, a1] = ellip ( 2, 0.001, 27, 7.45/fs);
           %для заграждения 100Гц
[b2, a2] = ellip ( 2, 0.001, 27, 15.5/fs);
           %для заграждения 200Гц
b = conv(b1, b2);% свёртка
a = conv(a1, a2);
```