

519.218.82

... , ...

,

-

$$S_{t-1}' - S_{t-1}'' -$$

t-1.

$$y_t -$$

t.

( )

[1].

[2].

$$\hat{x}(k+m)$$

MSoDES (modified structure of double exponential smoothing)

$$S_t' = \alpha \cdot y_t + (1-\alpha) \cdot S_{t-1}'; \quad (1)$$

m

$$S_t'' = \alpha \cdot S_t' + (1-\alpha) \cdot S_{t-1}'', \quad (2)$$

$$0 < \alpha < 1 - \quad ($$

$\varepsilon_1(k) \quad \varepsilon_2(k)$

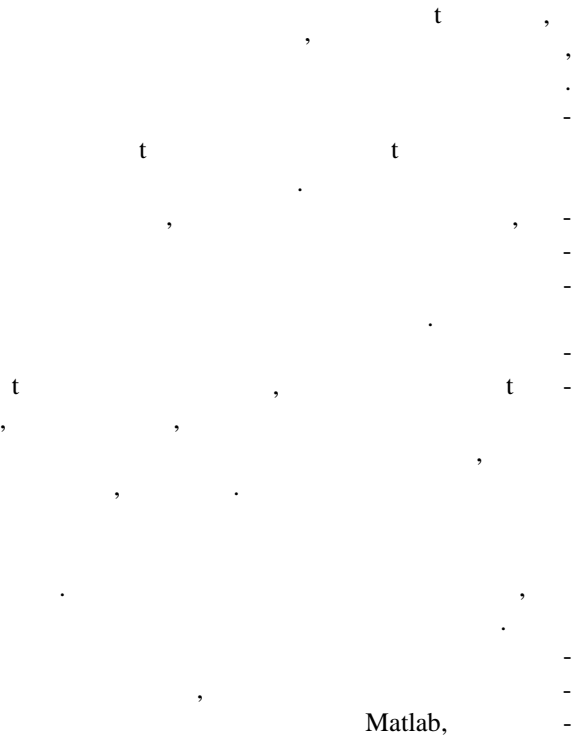
)

$$S_t' - S_t'' -$$

t.

$$|\varepsilon_1(k)|$$

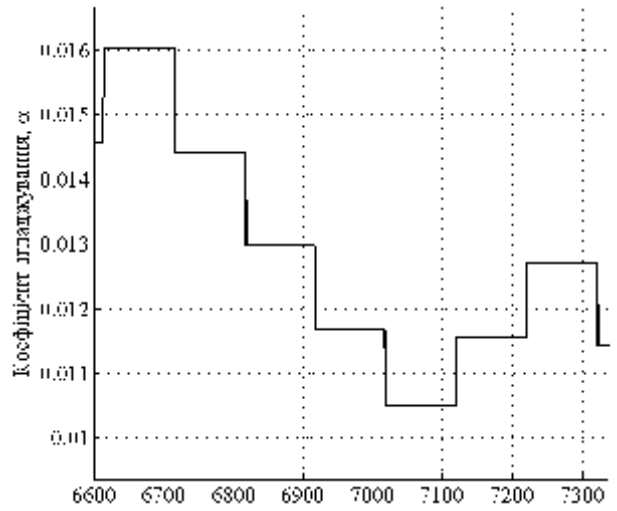
$|\varepsilon_2(k)|$ ,



Matlab.

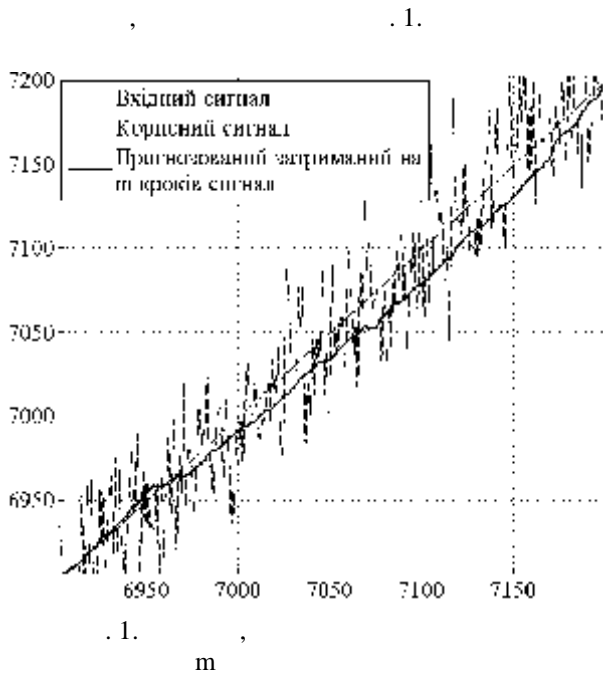
$\alpha = 0.5$

(1) (2).



.2.

(1) (2).



.1.

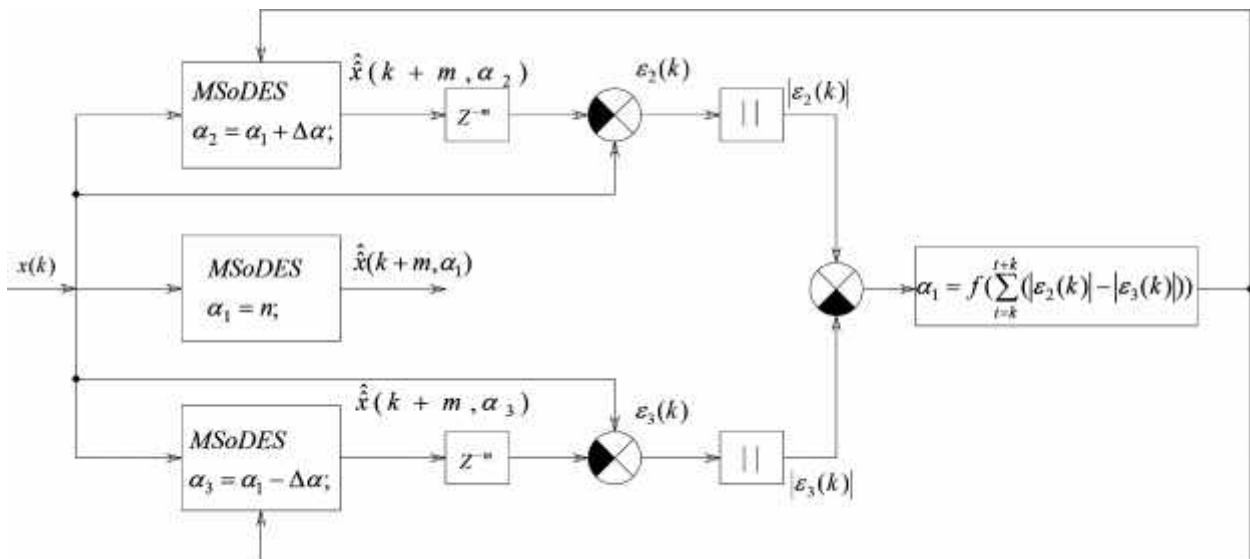
m

.3.

$1=n, 2=1+, 3=1-$

.2.

2 3.



.3.

1. , . . . ;

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2. . . .

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16.08.2017

### THREE-LOOP ADAPTIVE EXPONENTIAL FILTER-EXTRAPOLATOR

B.R. Boriak, A.M. Silvestrov

The research examined a method that allows us to estimate the quality of signal filtration by comparing information obtained from three filtration loops that operate on the same principle but with different parameters. Filtering loop is the combination of the simple filtering units, the principle of which is based on the Brown's double exponential smoothing. This method can be used to evaluate different process, to filter signals from control systems and measuring systems.

**Keywords:** double exponential smoothing, noise, forecast, tracking signal, nonius connection principle, smoothing factor.