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* 1, 2, 3, 4

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Abstract:

RLG) 가 가 가 g-sensitive 가
 RLG lock-in lock-in RLG
 RLG 가 RLG RLG

Keywords:

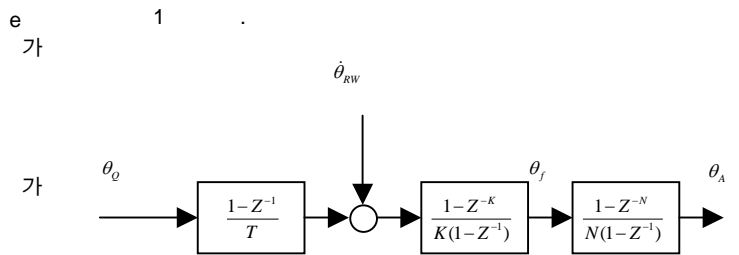
1. 4

3 가
 가

2.

(Quantization Noise)

가
 가



lock-in

가

1.

1

θ_{RW}

θ_Q

1

3

가

2

3

Average Filter)

1

K
(Accumulator)

1
(Moving

T 1

$\sigma^2_Q, \sigma^2_{RW}$

[1,2].

$$\sigma^2_{Af} = \frac{\sigma^2_Q}{2\pi} \int_{-\pi}^{\pi} f_A(\phi) f_A^*(\phi) d\phi \quad (1)$$

$f_A(\phi)$

$$f_A(\phi) = \frac{1-z^{-K}}{KT} \frac{1-z^{-N}}{N(1-z^{-1})} \quad (2)$$

ϕ 가 z

$$z = e^{j\phi} = \cos \phi + j \sin \phi \quad (3)$$

ϕ 가 4가

$$\sigma^2_{Af} = \frac{\sigma^2_Q}{2\pi N^2 K^2 T^2} \int_{-\pi}^{\pi} f_F(\phi, K) f_{AQ}(\phi, N) d\phi \quad (4)$$

$$f_F(\phi, K) = K + \sum_{j=1}^{K-1} 2(K-j) \cos j\phi$$

$$f_{AQ}(\phi, N) = 2 - 2 \cos N\phi$$

$K < N$ 가

$$\sigma^2_{Af} = \frac{2\sigma^2_Q}{N^2 T^2 K} \quad (5)$$

$$\sigma^2_{AR} = \frac{\sigma^2_Q}{2\pi N^2 K^2} \int_{-\pi}^{\pi} f_{AR}(\phi) f_{AR}^*(\phi) d\phi \quad (6)$$

$f_{AR}(\phi)$

$$f_{AR}(\phi) = \frac{1-z^{-K}}{(1-z^{-1})} \left\{ \frac{1-z^{-K}}{(1-z^{-1})} \right\}^* \quad (7)$$

$$= f_F(\phi, K)$$

$$\sigma^2_{AR} = \frac{\sigma^2_Q}{2\pi N^2 K^2} \int_{-\pi}^{\pi} f_F(\phi, K) f_F(\phi, N) d\phi \quad (8)$$

$K < N$ 가

$$\sigma^2_{AR} = \frac{\sigma^2_{RW}}{N} \left(1 - \frac{K^2 - 1}{3NK} \right) \quad (9)$$

σ^2_{RW}

N^2_{RW}

$$\sigma^2_{AR} = \frac{N^2_{RW}}{NT} \left(1 - \frac{K^2 - 1}{3NK} \right) \quad (10)$$

$$\sigma^2_A = \sigma^2_{Af} + \sigma^2_{AR} \quad (11)$$

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$K < N$ 가 K N

가

가

가

3.

3

가

가

[3,4].

2 . 2

가

7

가

$$\tan^{-1} \frac{D_1}{D_2}$$

D_1, D_2

D_1, D_2

가

가

(1mil)

(C_b^n)

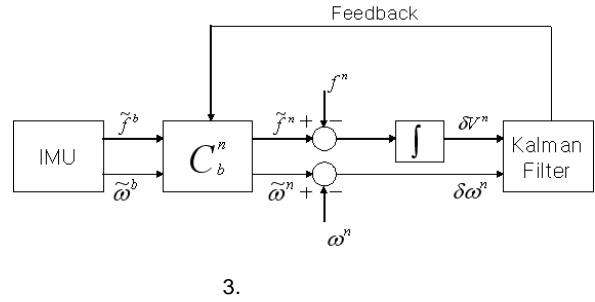
가

10

가

가
3

가



3.

가

D_1, D_2 가

4, 5

4

3
4

D_2

4, 5

가

가

4

± 0.0005 가

100 μg 가

가

5

가

6

240

가

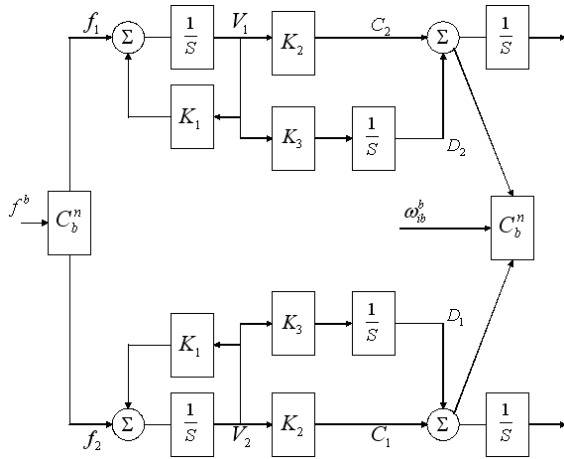
가

± 1.5 가

가

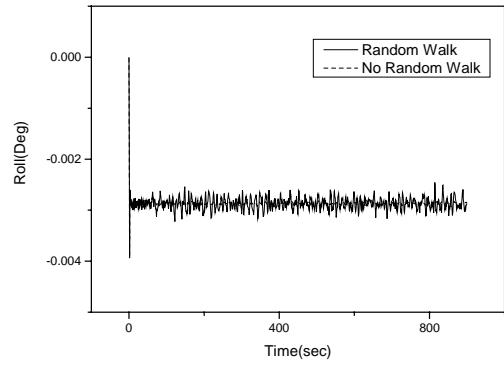
± 0.05 가

가

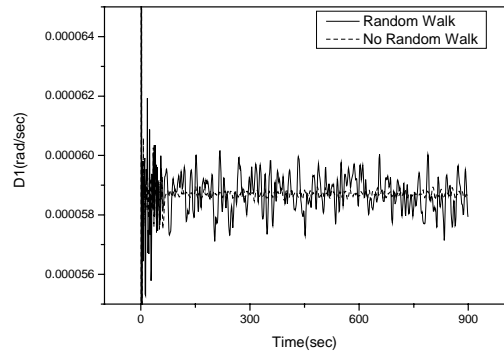


2.3

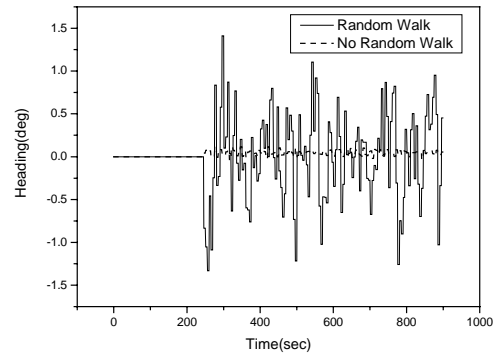
1



4.

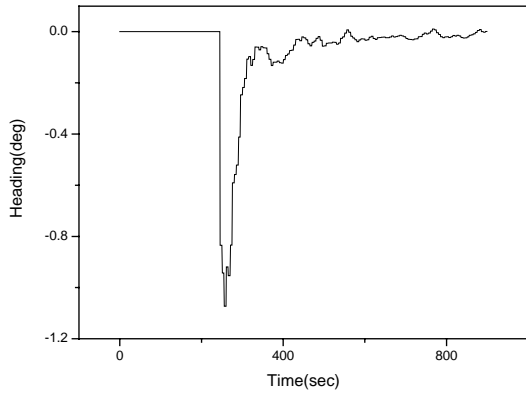


5.



6.

(Heading)



7. (Heading)

3

11

가

가

가

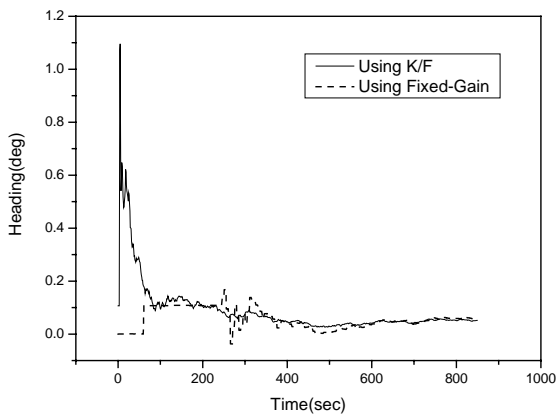
8

8

(1mil)

가

가



8.

4.

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가 가 가

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