w1 = 0.5

w2 = 0.1 \* c4d.d2r

nu  = 1

R = 1

dt = .01

|  |  |  |
| --- | --- | --- |
| Qk/Rk | Results |  |
| np.diag([w1, w2])\*\*2  Qk/Rk = [[0.25, 0],  [0, 3e-06]]) |  | Too large Q. the filter is induly influenced by the measurement errors and performes suboptimalluy. |
| np.diag([w1, w2])\*\*2 \* dt  [[2.5e-03, 0],  [0, 3e-08]] |  |  |
| Qk = np.diag([w1, w2])\*\*2 \* dt\*\*2  Qk/Rk=  [[2.5e-05, 0],  [0, 3e-10]] | Nees 0.5 |  |
| Qk =  np.diag([w1, w2])\*\*2 \* dt  Rk = nu\*\*2 / dt  Qk/Rk=  [[2.5e-05, 0],  [0, 3e-10]] | Nees 6e-3 |  |
| Qk =  [Δ*t*2.53847849822257⋅10−5Δ*t*3+0.25Δ*t*​Δ*t*−2.53847849822257⋅10−6Δ*t*3+7.61543549466772⋅10−6Δ*t*2​​Δ*t*−2.53847849822257⋅10−6Δ*t*3+7.61543549466772⋅10−6Δ*t*2​Δ*t*2.53847849822257⋅10−7Δ*t*3−1.52308709893354⋅10−6Δ*t*2+3.04617419786709⋅10−6Δ*t*​​]Δ*t*  =  np.array([[0.25, 7.6e-8], [7.6e-8, 3e-6]])  Rk = nu\*\*2  Qk/Rk = array([[.25, 7.6e-08],[7.6e-08, 3e-06]]) | \*9653123  210. | 0. |

0./74\