

(528)

$$\Theta_u = \left\{ n_s(k) \Big|_{s=0}^R, d_s(k) \Big|_{s=1}^R, m_s(k) \Big|_{s=0}^R \right\}$$

$$Y(k+r) = \frac{N(k+r)}{D(k+r)} U(k+r) + \frac{M(k+r)}{D(k+r)} + V(k+r)$$

NOT LINEAR-IN-PARAMETERS

(d)

$$\Theta_n = \arg \min \sum_{r=-n}^n |Y(k+r) D(k+r) - N(k+r) U(k+r) - M(k+r)|^2$$

LINEAR!

$$\left[\hat{G}_{LIM}(k) = \hat{G}_{k+0} = \frac{\hat{N}(k+0)}{\hat{D}(k+0)} = \hat{H}_0(k) \right]$$

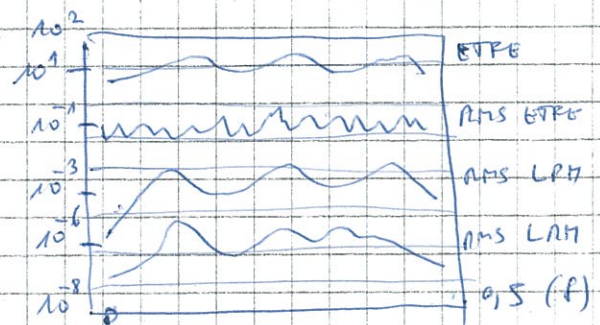
TOTAL NUMBER OF PARAMETERS $3R+2$ (SISO)

$$LPM: 2n+1 \geq 2R+2$$

$$LRM: 2n+1 \geq 3R+2$$

EXERCISE: p. 83

EXC. 51, 52

NOISE BACKGROUND MEASUREMENT

$$\Phi_w(k) = \Phi_{yy}(k) - \frac{|\Phi_{yu}(k)|^2}{\Phi_{uu}(k)}$$

$$\hat{V}(k+r) = Y(k+r) - \left(\hat{G}_{pol}(k+r) U(k+r) + \hat{T}(k+r) \right)$$

$$\hat{\Phi}_{yy} = |G|^2 \Phi_{uu}$$

$$\hat{\sigma}^2(k) = \frac{1}{2n+1-6} \sum_{r=-n}^n |\hat{V}(k+r)|^2$$

 $R=2$ OPTIMAL LOCAL BAND n FOR EACH K
(BIAS-VARIANCE TRADE-OFF)

$$\left(\begin{array}{l} 1 \\ q = 2(n-R) - 1 \\ n = R+1 \\ q = 1 \end{array} \right)$$