

Expected value of WSS signal through LTI system

$$\begin{aligned}\mu_Y &= E[Y(n)] = E[h(n) * X(n)] \\ &= E \left[\sum_{j=-\infty}^{\infty} h(j)X(n-j) \right] \\ &= \sum_j h(j)E[X(n-j)] \\ &= \mu_X \sum_j h(j)\end{aligned}$$

Autocorrelation function of WSS signal through LTI system

$$R_Y(k) = h(k) * h(-k) * R_X(k)$$