

6.5 Coherent frequency-shift keying – Minimum shift keying

For simplicity, assume $\theta(0) = 0$.

For $(2\ell - 1)T_b \leq t < (2\ell + 1)T_b$,

$$\begin{aligned} \cos[\theta(t) - \theta(0)] &= \cos[\theta(t)] = \tilde{I}_{2\ell-1} \cos\left(\frac{\pi(t - 2\ell T_b)}{2T_b}\right), \\ &= \tilde{I}_{2\ell-1} \sin\left(\frac{\pi(t - (2\ell - 1)T_b)}{2T_b}\right) \end{aligned}$$

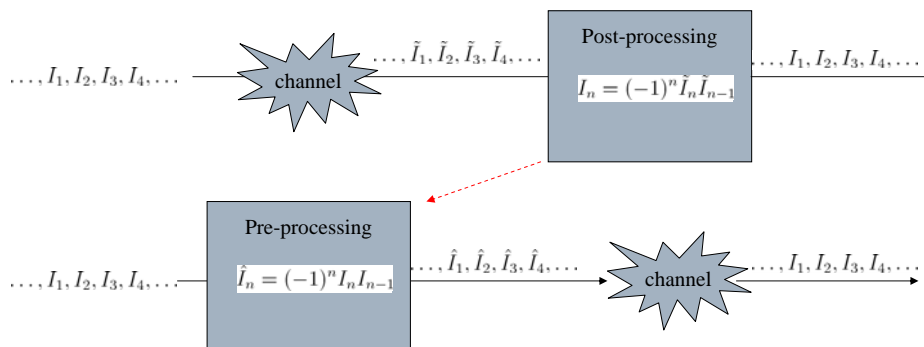
For $2\ell T_b \leq t < (2\ell + 2)T_b$,

$$\sin[\theta(t) - \theta(0)] = \sin[\theta(t)] = \tilde{I}_{2\ell} \sin\left(\frac{\pi(t - 2\ell T_b)}{2T_b}\right),$$

where $\tilde{I}_n \triangleq (-1)^{\lfloor n/2 \rfloor} (\prod_{k=0}^n I_k)$.

6-5 Supplement - MSK

- Under the **noise-free** transmission assumption, we simply **move** the post-processing function from receiver to transmitter.



6-5 Supplement - MSK

- Under the **noisy** transmission assumption, we simply **move** the post-processing function from receiver to transmitter.

