

$$\kappa \in \mathbb{R}, x = x^* : (y = y^*) \Leftrightarrow \left(\begin{array}{l} 0 \equiv K \pmod{2} : \left\{ \begin{array}{l} \Im(Y[\frac{K}{2}]) = 0 \\ Y[n] = e^{-jn} \frac{2\pi}{K} \kappa X[n], \quad n \in [0 \dots K-1] \setminus \{\frac{K}{2}\} \end{array} \right. \\ 1 \equiv K \pmod{2} : Y[n] = e^{-jn} \frac{2\pi}{K} \kappa X[n] \end{array} \right)$$