

Homework 4.

(Problem 6D.1). Prove (6.52), i.e.

$$\hat{R}_u^N(\tau) = \frac{1}{2\pi} \int_{-\pi}^{\pi} |U_N(\omega)|^2 e^{i\tau\omega} d\omega = \frac{1}{N} \sum_{t=1}^N u(t)u(t-\tau)$$

with the proper interpretation of the values outside the interval $1 \leq t \leq N$.