

In the name of God

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STOCHASTIC PROCESSES

Exercise Set 5

(Date Due: 1400/01/10)

1. For a given $(1 + 1)$ -D Gaussian signal, calculate $\langle n_{up}(\nu) \rangle = \langle \delta(x - \alpha)\Theta(\eta)\eta \rangle$. Suppose that $\langle x\eta \rangle = 0$ and $\langle \eta\eta \rangle = \sigma_1$. Derive the non-Gaussian part up to $\mathcal{O}(\sigma_0^2)$.
2. Using data set (0.2.txt, 0.5.txt and 0.8.txt), compute up-crossing statistics as a function of threshold, α .

Good luck, Movahed
