In the name of God

Department of Physics
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STOCHASTIC PROCESSES

Exercise Set 4

(Due Date: 1401/01/14)

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 $\langle \eta\eta\rangle = \sigma_1$. Derived 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