In the name of God

Department of Physics
Shahid Beheshti University

ADVANCED COURSE ON COMPUTATIONAL PHYSICS AND OPTIMIZATION

Exercise Set 9

(Due Date: 1403/03/20)

1. Microcanonical Hamiltonian Monte Carlo method for data modeling for $q = 2$: Using file which is called *dataexp2.txt* and consider $y_{theory} = ax^H$ compute a, H and their errors using Microcanonical HMC method. Compare your results with that obtained by HMC.

2. Canonical Langevin-like Hamiltonian Monte Carlo: Suppose that the friction coefficient is $\gamma = 0.1$ and the intensity of Langevin force is 0.1, compute the $\{\Theta\} : \{a, H\}$ for the data *dataexp2.txt*.

Good luck, Movahed

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