

Exercises in Statistical Mechanics

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This exercises pool is intended for a graduate course in “statistical mechanics”. Some of the problems are original, while other were assembled from various undocumented sources. In particular some problems originate from exams that were written by B. Horovitz (BGU), S. Fishman (Technion), and D. Cohen (BGU).

===== [Exercise 0060]

Oscillator in a microcanonical state

Assume that a harmonic oscillator with frequency Ω and mass m is prepared in a microcanonical state with energy E .

- (1) Write the probability distribution $\rho(x, p)$
- (2) Find the projected probability distribution $\rho(x)$