Propagation of Chaos

Prof. Dr. P. Pickl

Sheet 9

Aufgabe 1: An insurance company wants to create a new product and is interested in a certain random variable X which is Poisson distributed. Assume that you have two different estimates for the parameter λ which only differ slightly.

You decide to test which of the estimates is right and independently repeat the experiment which gives X n-times. How large should n be chosen to be able to formulate a test such that both errors (α and β) are roughly 2.5%.

Aufgabe 2: Given N particles in an external, confining potential V which is radially symmetric. Assume that, next to the total energy and particle number, also the total angular momentum I of the particles is fixed. Give the spatial density $\int \rho(x,v)d^3v$ for the state of maximal entropy.

Aufgabe 3: Prepare yourself for the quantum part which starts after Christmas. Get familiar with the N-body Schrödinger equation, L^2-spaces, operators and the bra-ket formalism.