Statistical Mechanics

Physics 406 at **University of Michigan**

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Lecture 1. (Jan 05) *States, Probability and Binomial Distribution*

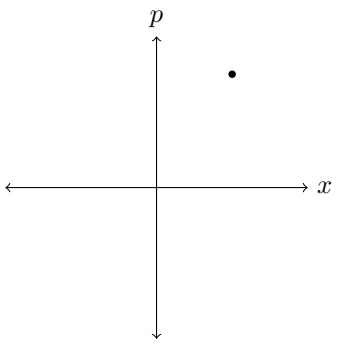

Figure 1: Phase space of 1-D particle

Lecture 2. (Jan 10) *Ensembles*

Lagrange multipliers

$$S = -k \sum_r p_r \ln(p_r) \tag{0.1}$$

Microcanonical ensemble: All accessible microstate are equally probable

Lecture 3. (Jan 12) *Finding total microstate*

N particles in volume V with energy between $E, E + \delta E$. Counting number of microstate by using phase space
simplifying example : a 1-D particle has only x and p. Plot in phase space Example in harmonic oscillator with ellipse and shading in phi(E) and Omega(E) Include text in caption explaining equations below it.
Moving to 3-D talk about degrees of freesdom and volume of h_0.
Integrating to get Phi(E) with multiintegrals and then taylor approx to get Omega
Quantum Description–¿ specify microstate with quantum numbers
example with simp harmon oscill