IntroCosmo24

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Homework problems #9

Due January 20, 2025

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Using the information and data provided at the last lecture (January 9, 2025):
a) calculate the zero-point energy of a quantum harmonic oscillator with $m = 1$

$$E = \frac{p^2}{2} + \frac{\omega^2 x^2}{2} \; .$$

Comments are welcome.

b) estimate the minimal mass of a spherical perturbation that could grow due to self gravity at the epoch of recombination ($T = 3000K, z = 1000$). Comments are welcome.