

**ABSTRACT****INVESTIGATION OF THERMODYNAMICAL PROPERTIES OF TRAPPED PARTICLES**

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The volume parameter of the systems that are close to 0 K can not be controlled, therefore for these systems, the angular frequency of the time dependent magnetic field to trap the particles is a more suitable parameter for the work term in the first law of thermodynamics. In these thesis, we investigate the change of the thermodynamical equation of states when one uses the frequency instead of the volume in the first law of thermodynamics.

**Key Words**

Generalized pressure, harmonic trap, thermodynamics of trapped particles