



OFÍCIO Nº0034/2020/GEMAB/DPL/EPL

Brasília, 02 de março de 2020.

À Senhora

CLARICE SANTOS VELOSO

Coordenação de Licenciamento Ambiental de Transportes (COTRA)

Instituto Brasileiro de Meio Ambiente e dos Recursos Naturais Renováveis (IBAMA)

SCEN Trecho 2 - Ed. Sede.

CEP 70818-900, Brasília – DF.

Assunto: **BR - 116/MG – Relatório de Audiências Públicas**

Referência: **Processo IBAMA nº 02001.007991/2012-19**

Senhora Coordenadora,

1. Trata-se do licenciamento ambiental para regularização e duplicação da Rodovia BR-116/MG, trecho Div. MG/RJ (Além Paraíba), segmento km 0,0 á km 818,1, com 818 km de extensão, Processo IBAMA nº 02001.007991/2012-19.
2. Encaminhamos o *Relatório das Audiências Públicas* do empreendimento em questão realizadas nos dias:
 - **11/02/2020** - Auditório da FUNDARTE – Fundação de Cultura, Arte e Turismo - Prefeitura Municipal de Muriaé – Centro - **Muriaé/MG**;
 - **12/02/2020** - Auditório da Prefeitura Municipal – Centro - **Governador Valadares/MG**;
 - **13/02/2020** - Câmara Municipal de Itaobim – Centro- **Itaobim/MG**.
3. Destacamos que o Relatório consta de 04 (quatro) mídias digitais anexas, sendo:
 - CD 1: Relatório Técnico e Anexos 1 a 15;
 - CD 2: Anexo 16.1;
 - CD 3: Anexo 16.2;
 - CD 4: Anexo 16.3.

Atenciosamente,

PAULA DURANTE TAGLIARI
Gerente de Meio Ambiente

Sui 7120227
DICAD/COAPS/CGEAD
Em 04/03/20
Às 13:04 horas
Assinatura

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS 435

LECTURE 10

STATISTICAL MECHANICS

LECTURE 10

The first part of the lecture is devoted to a review of the basic concepts of statistical mechanics. We begin with the microcanonical ensemble, which is the most fundamental ensemble. In this ensemble, the system is isolated and its energy is fixed. The number of particles, volume, and energy are constant. The microcanonical ensemble is characterized by the entropy, which is a function of the energy, volume, and number of particles.

The second part of the lecture is devoted to the canonical ensemble. In this ensemble, the system is in contact with a heat reservoir at a fixed temperature. The energy of the system is not fixed, but the temperature is constant. The canonical ensemble is characterized by the Helmholtz free energy, which is a function of the temperature, volume, and number of particles. The Helmholtz free energy is related to the partition function, which is a sum over all possible states of the system.

The third part of the lecture is devoted to the grand canonical ensemble. In this ensemble, the system is in contact with a heat reservoir and a particle reservoir. The energy and the number of particles are not fixed, but the temperature and the chemical potential are constant. The grand canonical ensemble is characterized by the grand potential, which is a function of the temperature, volume, and chemical potential. The grand potential is related to the grand partition function, which is a sum over all possible states of the system.

The fourth part of the lecture is devoted to the derivation of the equations of state for the various ensembles. We start with the microcanonical ensemble and derive the equation of state for an ideal gas. We then move to the canonical ensemble and derive the equation of state for an ideal gas. Finally, we move to the grand canonical ensemble and derive the equation of state for an ideal gas.









