

## CHAPTER OVERVIEW

### 3: Ideal and Not-So-Ideal Gases

In this chapter, the general principles of thermodynamics and statistics, discussed in the previous two chapters, are applied to examine the basic physical properties of gases, i.e. collections of identical particles (for example, atoms or molecules) that are free to move inside a certain volume, either not interacting or weakly interacting with each other. We will see that due to the quantum statistics, properties of even the simplest, so-called ideal gases, with negligible direct interactions between particles, may be highly nontrivial.

[3.1: Ideal Classical Gas](#)

[3.2: Calculating Chemical Potentials](#)

[3.3: Degenerate Fermi gas](#)

[3.4: The Bose-Einstein condensation](#)

[3.5: Gases of weakly interacting particles](#)

[3.6: Exercise problems](#)

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