

Condensed Matter Physics (CMP) explores the fundamental properties of matter and their origins resulting from the interactions of a large number of atoms and electrons. The intricate nature of these interactions results in properties and associated phenomena that often hint at a rich vein of underlying physics. Although the perspective is changing constantly with new discoveries, the basic challenges in CMP are to predict and observe new phenomena and elucidate novel properties of materials often pushing at the frontiers of quantum mechanics.

CMP is also a field which stimulates technological innovation that revolutionizes modern society. For more than five decades, the engine of CMP has largely been driven by semiconductor industry. Probably the most notable example is the invention of the transistor which was recognized by the 1956 Nobel Prize in Physics given to William Shockley, John Bardeen, and Walter Brattain. The transistor—a basic building block of modern electronic devices—was a result of innovative research in the field of semiconductors. The transistor and the invention of the integrated circuit in 1958 was the starting point for exponential increase in the computational power known as Moore's law. There is a persistent interplay between the fundamental science and technological applications which provides breadth to CMP.

The condensed matter field is thought about among the biggest and most flexible sub-fields of research in physics, mostly due to the variety of subjects and phenomena that are readily available to study. Advancements in the field of condensed matter physics have actually caused the discovery and usage of liquid crystals, modern-day plastic and composite products and the discovery of the Bose-Einstein Condensate.

Strong partnership amongst theorists and experimentalists is an essential element of condensed matter research study and brand-new speculative and theoretical methods have actually been established to study and describe the buildings of products. The primary objective of speculative condensed matter physics is to look for an understanding of the macroscopic habits of condensed matter from their tiny interactions and balances through experiments. The basic principles established in condensed matter physics typically have strong effect on other locations of physics.

<https://doi.org/10.3389/fphy.2013.00032>
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Work to do:

1. Give a title to the text.
2. Give synonyms to the underlined words.
3. Why do you want to study CMP?