Concept Mapping
4
Concepts of Nobel Prize in Physics
(Superconductors & Related Achievements)

By

Dr.Kumuda Gururao

Social Media Technologist n Learning Consultant

www.advisor2u.com

(Former Chief Learning Officer at Alpha Group of Institutions)
www.alphagroup.edu


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Summary of the book

The book expounds the concepts of **Superconductors & Related Achievements** for which Nobel Prizes have been given. The above concepts are illustrated through Concept Mapping, a strategy that enhances meaningful learning.

The book starts from the **discovery of superconductivity** by Kamerlingh Onnes and **proceeds** to **explain** its behaviour due to **Cooper Pairs**. The phenomenon of **tunnelling** that occurs in superconductors for which Nobel Prize was awarded in 1973.is also elucidated Then the phenomenon of High Temperature Superconductor (**HTSC**) which can be achieved by using certain oxides is also explained.

The formation of **superfluid** and its presence in **helium 3** is illustrated. The condensation of helium 3 in a complicated manner is described on the basis of superconductivity in metals and superfluidity of helium 4.

The different methods **to cool and trap atoms with laser light** for which Nobel Prize was awarded in 1997 were described. These methods led to Bose Einstein Condensation in dilute gases. Finally the concept of **Super Atom**, **Various Techniques** involved in **producing low temperatures** and the **prospects** of **Bose Einstein Condensation** for which Nobel Prize was given in 2001 were also explained.

Since Concept Mapping is proved to promote meaningful learning the author believes that the book would promote meaningful learning of **superconductors** and **related achievements**.

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2.4 Tunnelling in Superconductors : Concepts of Nobel Prize in Physics for the year 1973

2.5 Helium II - The Superfluid : Concepts of Nobel Prize in Physics for the year 1978

2.6 High Temperature Superconductivity - Concept of Nobel Prize in Physics for the year 1987

2.7 Superfluidity in Helium-3 : Concept of Nobel Prize in Physics for the year 1996

2.8 Development of Methods to Cool and Trap Atoms with Laser Light : Concepts of Nobel Prize in Physics for the year 1997

2.9 Bose Einstein Condensation in Dilute Gases : Concepts of Nobel Prize in Physics for the year 2001

Chapter 3 : Conclusion