STUDY OF SILICON-GRAPHENE PROPERTIES

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Today, modern life on the Earth is correlated to semiconductors. Silicon abundance on the Earth and its nontoxic properties make it the most favorite material in semiconductor industries. But, its physical properties are restricted, then its efficiency is limited. The application of material science is essential in efforts to increase the efficiency. In this regards, Graphene Thin-Film on Silicon is a significant method for efficiency improvement.

Each atom in a graphene Thin-Film is connected to its three nearest neighbors by a σ-bond, and contributes one electron to a conduction band that extends over the whole sheet. These conduction bands make graphene a semimetal with unusual electronic properties. Hence, Graphene nanolayer (Thin-Film) that is deposited on the Silicon improve its physical properties such as thermal and electrical conductivity as well as magnetic properties.
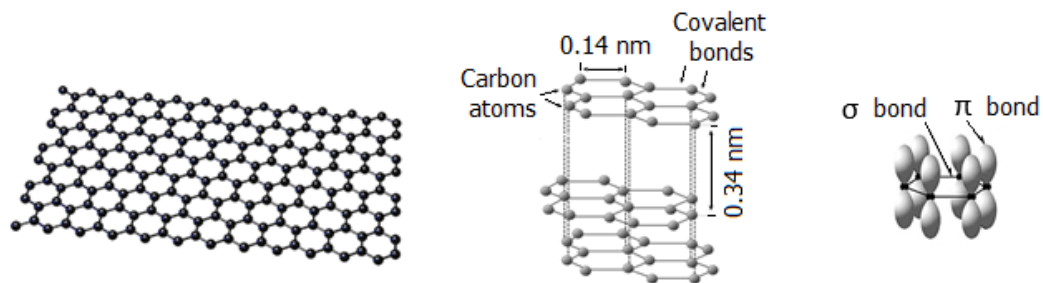
In this work first, Silicon physical properties improvement by Graphene Thin-Film is studied generally. However, there are different Silicon physical properties that could be improved by Graphene Thin-Film, but the authors current experimental investigation focused on electrical properties improvement. Therefore, the novel Thin-Film methodology (CWLD) and related results will be discussed secondly [1,2].

References:
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