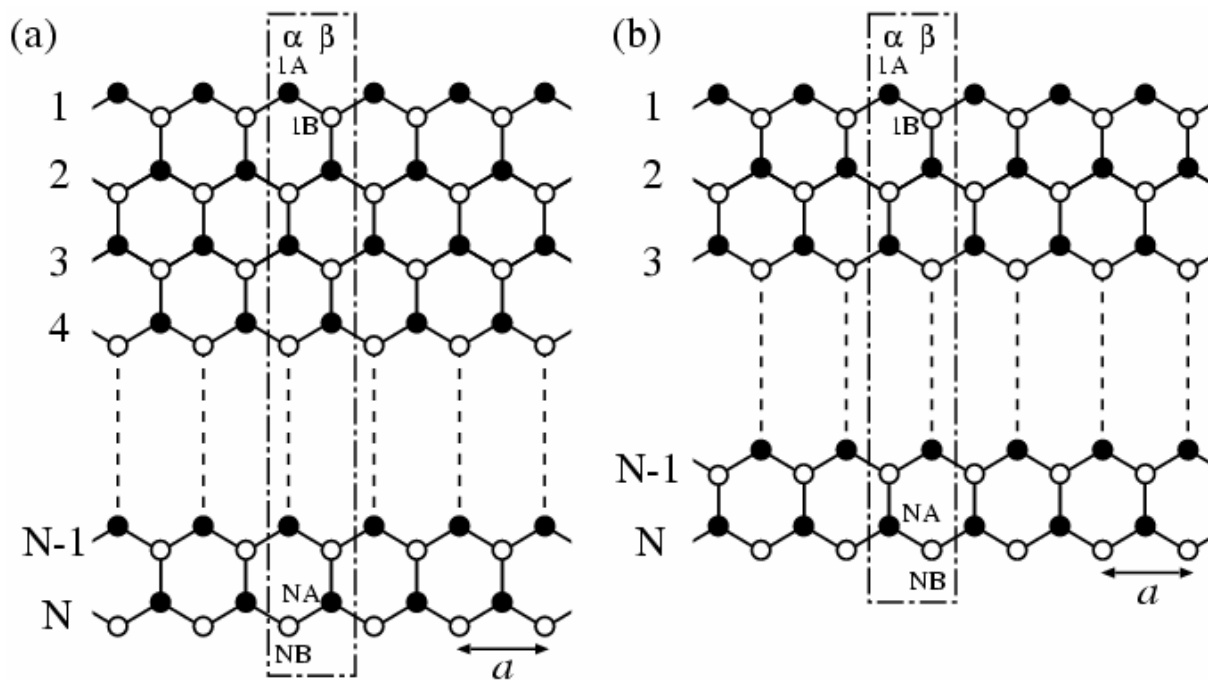


Theoretical study on atomic-layer materials

Hideo YOSHIOKA [Physics and Mathematics Course]



Graphene nanoribbons with zigzag edges

Graphene is the two-dimensional material where carbon atoms are arranged in hexagonal structure. The low energy properties of graphene are well described by the massless Dirac equation. Silicene is also an atomic-layer material consisting of silicon atoms. The topological properties of silicene can be controlled by applying the external electric field perpendicular to the layer. Thus, silicene has both properties of Dirac electrons and topological materials. I investigate properties of above materials (transport properties and/or magnetic properties) theoretically.

Keywords : graphene、silicene、topological insulators、Dirac electrons