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層状ビスマスアンチモンテルライド熱電薄膜のファンデルワールスエピタキシー用のグラフェン基板

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Graphene Substrate for van der Waals Epitaxy of Layer-Structured Bismuth Antimony Telluride Thermoelectric Film

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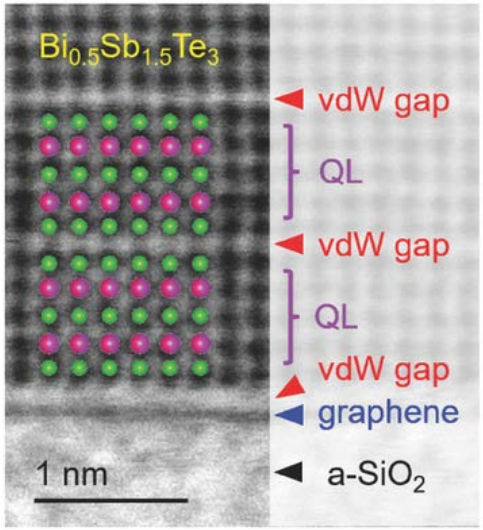
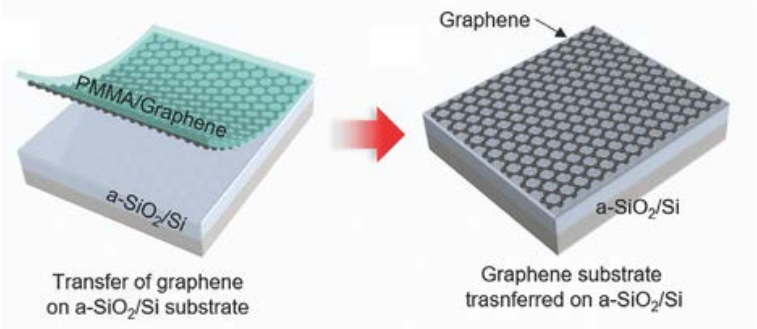
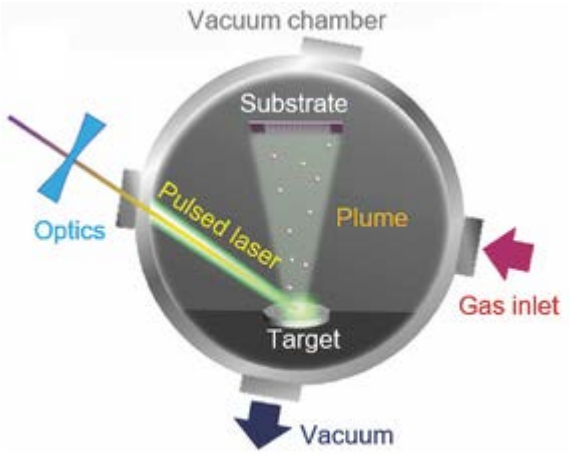


Preparation of Graphene substrate





Pulsed Laser Deposition

グラフェンを熱電材料である層状$Bi_{0.5}Sb_{1.5}Te_3$薄膜のファンデルワールスエピタキシー用基板に用いたところ、非常に高品質な薄膜結晶が得られ、単結晶に匹敵する高い熱電特性を示した。

Graphene as a substrate for the van der Waals epitaxy of 2D layered materials is utilized for the epitaxial growth of a layer-structured thermoelectric film. Van der Waals epitaxial $Bi_{0.5}Sb_{1.5}Te_3$ film on graphene synthesized via a simple and scalable fabrication method exhibits good crystallinity and high thermoelectric transport properties comparable to single crystals.