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Various Types of Dirac Cone Materials of $Bi_{1-x}Sbx$ Thin Films
SHUANG TANG, MILDRED DRESSELHAUS, MIT — The band structure of bismuth antimony thin films varies as a function of stoichiometry, film thickness and growth orientation. Different types of Dirac cone materials can be constructed based on the bismuth antimony thin films system, including single-Dirac-cone, bi-Dirac-cone and tri-Dirac cone materials, and also including exact-Dirac-cone, semi-Dirac-cone and quasi-Dirac-cone materials. The degree of anisotropy of a Dirac cone can be controlled, which range from ~ 2 to ~ 14. Interesting transport phenomena are expected in different Dirac cone materials, which may be optimized for different purposes of applications, e.g. thermoelectrics, electronics etc.

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