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*Band anticrossing in III-Bi-V alloys**

Abstract: Group III-Bi-V materials belong to a new class of highly mismatched alloys (HMAs) in which electronegative (metallic) atoms are partially substituted with more metallic (electronegative) isovalent atoms. The energy band structure of HMAs is described the Band Anticrossing (BAC) model that considers an interaction between extended states of the semiconductor matrix and localized states of the the minority atoms. In the case of III-Bi-V alloys the localized states of the substitutional Bi interact with the valence band states of the host III-V compound resulting in a massive restructuring of the valence band. In my talk I will present our experimental and theoretical work on GaBiAs alloys and discuss potential applications of these and other HMAs for solar energy conversion applications.

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