Theory of optical properties of segregated InAs/GaSb superlattices

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Abstract: [illegible]

1 Introduction

[illegible]

0

0 .

w w

0 , fi 0 ,

0

fi 0, , 0 -

0 0

fi w fi 0.
0 0, 0 0
(
'),
S
0 0 , - S .
V / G_{BK}
0 0 w 0 0
fi
AG, S 0 .
( ) 0 0 0 w
0
0 S -3 AG, S ,
w 0 fi 0 .

0 w -16
0 fi 0 .

4 Method

0 .
- S 0 :

$$\left[-\frac{\beta}{2}\nabla^2 \quad \sum_{\alpha} v_{\alpha} \quad - R \quad \alpha \right]\psi \quad \epsilon\,\psi$$

w R α 0
α I , Ga, A , Sb . , w
, v_α, 0 0
. 0
; w ψ w
- 0 0 w . v_α w
0 0 (A),
0 0 w - w -17 A
0 , -
0 , 0 0 - -
. 0
0 0 w
w $V(G)$
G

(3) w A , . w . 3 -25 , w A - (. 1); ( ) V / G_{BK} fi ; ( ) w . - .

5 Results

5.1 Band bowing of ternary alloys

A AG, S w . I Ga_{1-} A , I Ga_{1-} Sb, GaA 8 .96 (A 49)7 .96

5.3 Blue shift of bandgap of segregated InAs/GaSb superlattices against ideal structures

6 Conclusions

: ( ) ; ( ) AG, S , G, S -A fi G, A S ; ( ) w fi .

w AG, S , fi .

w : (*a*) ; (*b*) ; ( ) , w .

7 Acknowledgment

, . ., w w- - fi A (A) - . w S , fi S , S .

8 References

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