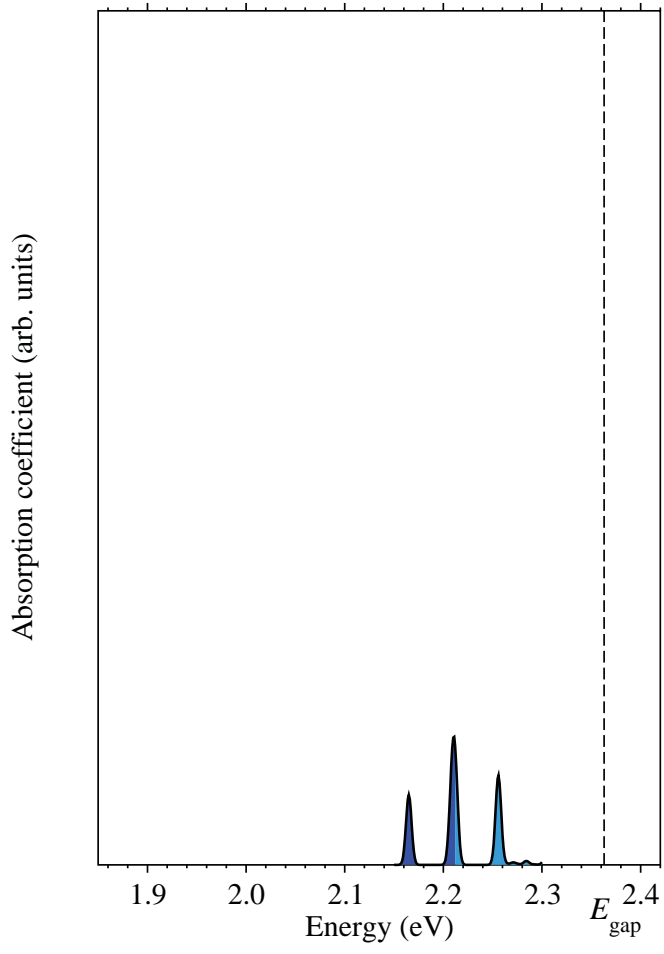


Localized interface state in coherent oval semiconductor heterojunction

¹P D a a ^{1,2,*} A ^{3,†}
²Na a R a E La a ,G ,C a 80401, USA
³U C a ,B ,C a 80302, USA
 (13 A 2011; 16 S 2011; 22 S 2011)

V
 417252(-) (15456.5 0004172.-.5())-735.4(- - ()-.5(4()-0496.(B)) S)-3-0494-456.5()-5607 4172486





V-C S C A A

S CA V B 84, 125315 (2011)

()
 $n + m$;
(n, m)
 n m
 $n + m$
, X_z

B. Computing the QW eigenstate

T

$$\left[-\frac{\nabla^2}{2} + \sum_n \hat{v}(\vec{r} - \vec{R}_n, \underline{n}) + \hat{V} \right] |i\rangle = E_i |i\rangle, \quad (3)$$

$$v(\vec{r} - \vec{R}_n, \underline{n})$$

\vec{R}_n :

$$v(\vec{r}, \underline{n}) = v(\vec{r}, 0) + T(\underline{n}), \quad (4)$$

(3) ... \hat{V} ... $v(\vec{r}, 0)$... $v(\vec{r}, 0)$... (A) ... (X, L) ...

AB/AC ... $A_x B_{1-x} C$... A ... \vec{R}_n ... B ... M ... 19 ... 20 ...

C. Lattice relaxation by strain minimization

A ...

A. Model of interface in a single heterojunction

1930, T²⁶ S²⁷

J²⁸

T²⁹

T²⁸, T

A B. I³⁰

S_A () - B, CB

V^B;^{7,8} () ()

X. T³¹

A/A A S²⁹

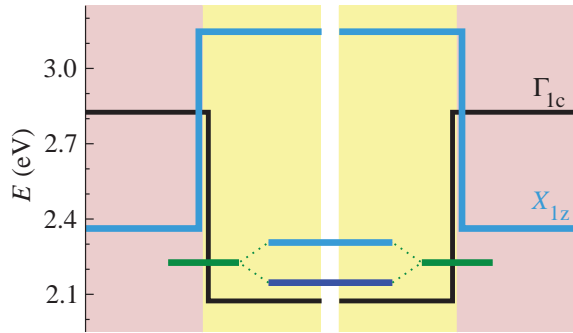
B. Appearance of a single interface in the InP/GaP junction

T³²

(001)

S³³ n m S () n = m =

(001)- S



$$e_s(\dots)$$

$$n \cdot 5(\dots) \quad n=7 \quad \cdot \mathbf{T}$$

$$e_s(\dots)$$

S'

(TB)

$$\mathbf{T}$$

$$0.75 \sqrt{\dots}$$

TB

$$n=10 \quad \cdot C$$

$$n=1 \quad ,$$

$$n \geq 8 \quad , \quad n \leq 7$$

n

$$\vec{k} = (0, 0, k_z) \quad (S \dots) :$$

(7)

, n ,
2
n. , 1
n ,
e_s(

TAB . A , , A (.)³,

; (A2) (A3). A - 5 ; , 5.1346 -09 5.1346 × 10⁻⁹.

a_{SO}

a

b

c

