(,) N

. . , . . , *
E , C , 80401, A

(26 2010; 12 2010; 15 2010)

, -
, , , .
( ), , ,
. . ,
, .
, ( )
- ~50 ( ) -
, . ( ) -
27000 .
: ( ) , .
- -

$E(A\ B_1\ C)$ $E(AC,\ )+(1\ )E(BC,\ )$,

$_C$.[24,26]

. 24.

$=1870$ ( ) $_C=600$

.[7] (: , [2,24]).

. 1.

.[24,26,27]

1. Cluster expansion

( ),[27] $E(\ )$, $=\ _0,\ _1,\cdots,$ (.,

,

$$E\ (\ )=\ _0+\frac{1}{}\left[\sum\ +\sum\ +\sum\ +\cdots\right]$$

$$+\sum_{k}$$

{ ,...} E ( )
{ E ( )}.
: ( ) ,
, .
. (1)]. 2( )
( ) /( )
, ,
.
( )
$A B_1 C$.
[. .,
. (1)]. 2( )
( ) /( ) ,
,
(. 30)
.[31,32]
9 9 9
435 .
E 1 / . “
( )
.[33]
(. .,) .
, .[24]

2. Monte Carlo simulations of the atomic microstructures

2 .[34,35]

( )
) .
$E/$, E
, .
, .
27000
0.0002.
:
( ),
.
,
.
=10000 (, 0.06,
=0).
, ,
=300 1000 .
50% (. ., =0 20 %) .[7,16]

3. Relaxation of the atomic microstructures

(. .,)
.
, ,

[1]

(. ., “), 0

“ (. ., “), =0

.[40]

, [A_nB_{4-n}] (. 41)

.[16,17,22]

, . .,

[4] =1 4.

1. Empirical pseudopotential calculations

.[42]

, , ,

, ,

, . .

. 42.

[43] 0.76 . ,

, , ,

- .[43]

=0 -

.

$E^{( )}$(/) . [18,44,45] ( ).

( ) ( ) -

. 44). (06) (. 18) 0.62 ,

[46]) 0.58 . , $E^{( )}$ 0.62 [

$E^{( )}$=1.1 (. 45)

]. , 0.26

.[43] , 0.3 0.6 ,

(/ [16,17]) - ( )

(20%) .

, - ( ), [47] .

10 [6] .

, -

[. 3( )], ,
=2400) (. .,
),

. 6( ) 6( )
27000
.

1. Random alloys

80% 75%
[. 6( ) ( )].
, -
=1% [. 4( )]
=20% [. 5( )].
6( ) ( ),
=10 20 %.
. 4( ) 4( ) 1%,
5( ) 5( ) 20%.

.) , 16,17,33how-53ord536 041%,Tc (

2. Coherent alloys

( )]

. 600) 3 ı ˃ -
3 3 ; ( )

29 . . , . , n , . , . . , 1687 (1999).
30 . . . , . . , 5048 (1981).
31 . . . , . . , 15 (1996).
32 . . . , A , (, , , 2007).
33 - .
34 . . , . . , 521 (2002).
35 ://
36 . , . . , . , . . , . . , 045208 (2002).
37 . , . . , 637 (1966).
38 . . , . . , 4005 (1970).
39 . , . . . , . , . . , 16310 (1996).
40 . , . .
41 .- . , . . , . . , 8240 (1990).
42 . . , . . , 1642 (1997).
43 . . ( ).
44 .- . . , . . , 2719 (1996).
45 .- . , . , . , .- . , .- . , . , ... , . . , .- . , . . . , 212109 (2009).
46 . . . , . . , . . , . . , . . , . . , 033308 (2008).
47 .- . . , . . , 2394 (1994).
48 .- . , . , .- . , . , . . . , 4725 (1998).
49 . . , . . , . . , . . , . . , . . , . . , 061903 (2007).