

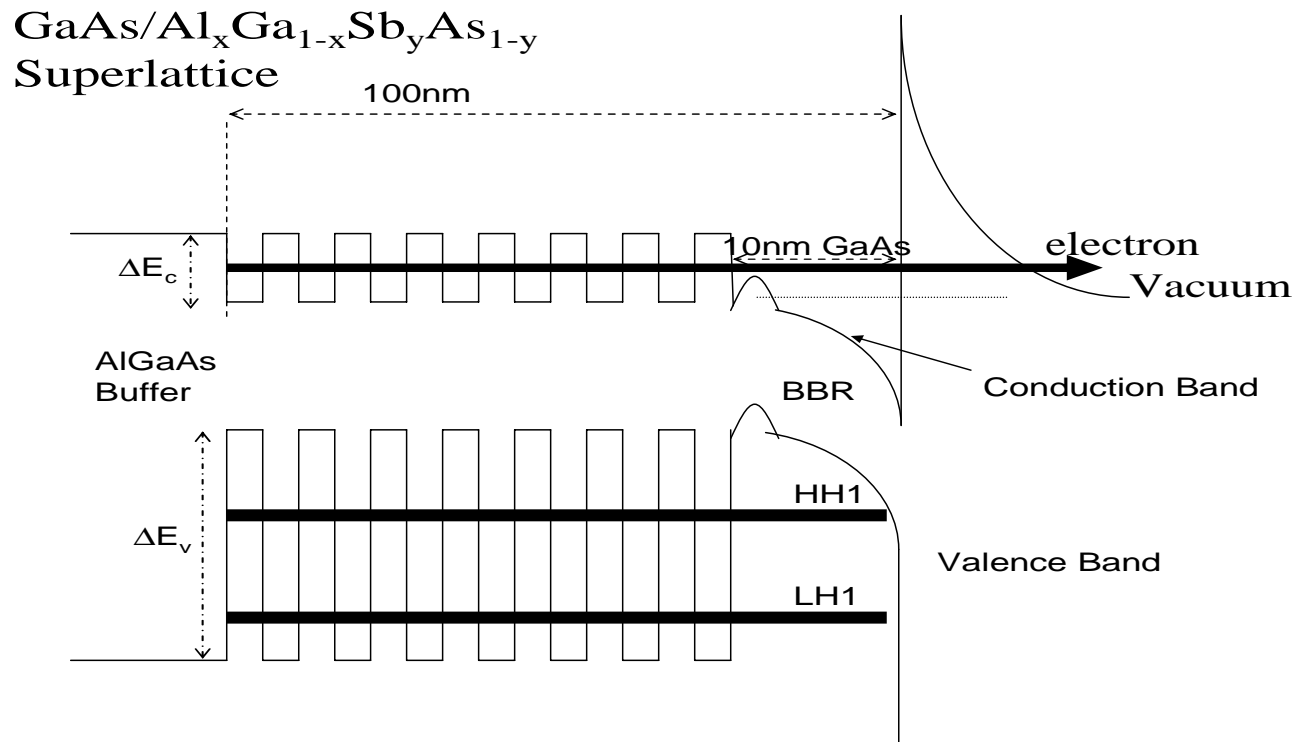
Cathode R&D 08/02/06

- Saxet project update

1. Thin grid with lines on top showed QE bias effect.
2. Greg will try to deposit lines on 10^{18}cm^{-3} doped but contacts were ohmic
3. We need samples to maintain Schottky contact after heat cleaning
4. We suggest Re and Ru contacts instead of W which have demonstrated Schottky contacts after high temperature heat cleaning
5. Takashi will order Rhenium (Re) Part No. EJTREXX402A2 and Ruthenium (Ru) Part No. EJTRUXX352A2 from K. J. Lesker catalog.

Cathode R&D 08/02/06

- Professor Cary from Colorado will visit SLAC in September with the interest of writing an SBIR proposal with us based on the Monte Carlo modeling and code of my thesis for cathode emission models
- Sb proposal is finally sent to Prof. Alibert:



Sb proposal

The following table summarizes proposed structures with lattice mismatch, a_w/a_b , varying from 1-1.4%.

#	x	y	well	barrier	Bandgap	LH-HH splitting	a_w/a_b
17	0.4	0.13	1.5nm	4nm	1.63eV	49meV	1
18	0.5	0.13	1.5nm	4nm	1.72eV	62meV	
19	0.4	0.15	1.5nm	4nm	1.63eV	54meV	1.2
20	0.5	0.15	1.5nm	4nm	1.70eV	65meV	
21	0.4	0.18	1.5nm	4nm	1.63eV	58meV	1.4
22	0.5	0.18	1.5nm	4nm	1.72eV	67meV	

We suggest structures 18, 20 22 with basic period of 1.5nm well and 4nm barrier:

- 1) 5nm GaAs cap Be: $1 \times 10^{19} \text{ cm}^{-3}$
- 2) Barrier: 1.5nm AlGaAsSb Be: $1 \times 10^{17} \text{ cm}^{-3}$
- 3) Well: 4nm GaAs Be $1 \times 10^{17} \text{ cm}^{-3}$
Repeat 2),3) 18 times
- 4) 1micron Al(0.3)Ga(0.7)As Be $1-5 \times 10^{18} \text{ cm}^{-3}$
GaAs Buffer
GaAs substrate $1 \times 10^{18} \text{ cm}^{-3}$ p or n doped