

Appendix B: Monte Carlo Input Files

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Staircase APD

Single-Step Staircase

Input File

pin1.prm
tem
300
photonev
1.43
impfac
1
DeltaEg
0.05
I0
1000
max_time
1e-8
min_time
1e-17
Vapp
10
Vinc
1
Vbi
1.5
max_gain
100
max_steps
1
stat_bin
1
structfilename
structpin1.txt
gainfilename
thresh13.txt
distrfilename
distrpin1.txt
freqfilename
freqpin1.txt
carrierfilename
carrierpin1.txt
swk0filename
swk0inalas190.out
swk1filename
swk1inalas190.out
swk2filename
swk2inalas190.out

swkHfilename
swkHinalas190.out
structure
lnAs
1000.0e-9
5.0e24
0
0.42
1.7
0.42
100
1.00
1.00
3.5e12
8e0
0.417
1.133
1.433
0
0.02
0.39
0.026
0.072
0.224
0.333
0.027
0.14
1.0
15.15
12.3
0.417
0
1.0e15
5680
2945
0.011
0.024
0.013
lnAs
500.0e-9
5.0e24
2e7
0.42
1.7
0.42
15500
1.00
1.00

3.5e12
8e0
0.417
1.133
1.433
0
0.02
0.39
0.026
0.072
0.224
0.333
0.027
0.14
1.0
15.15
12.3
0.417
0
1.0e15
5680
2945
0.011
0.024
0.013
InAsSb
4.00E-08
-2.00E+20
0.00E+00
2.50E-01
1.70E+00
4.20E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
4.17E-01
1.13E+00
1.43E+00
0.00E+00
2.00E-02
3.90E-01
2.60E-02
7.20E-02
2.24E-01
3.33E-01
2.70E-02

1.40E-01
1.00E+00
1.52E+01
1.23E+01
4.17E-01
0.00E+00
1.00E+15
5.68E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb00
1.00E-08
-2.00E+20
0.00E+00
4.20E-01
1.70E+00
4.20E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
4.17E-01
1.13E+00
1.43E+00
0.00E+00
2.00E-02
3.90E-01
2.60E-02
7.20E-02
2.24E-01
3.33E-01
2.70E-02
1.40E-01
1.00E+00
1.52E+01
1.23E+01
4.17E-01
0.00E+00
1.00E+15
5.68E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb05

1.00E-08
-2.00E+20
0.00E+00
4.09E-01
1.89E+00
4.09E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
5.16E-01
1.19E+00
1.45E+00
0.00E+00
2.13E-02
4.00E-01
3.15E-02
8.34E-02
2.23E-01
3.35E-01
3.28E-02
1.45E-01
1.00E+00
1.49E+01
1.22E+01
5.16E-01
5.00E-02
1.00E+15
5.60E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb10
1.00E-08
-2.00E+20
0.00E+00
3.98E-01
2.08E+00
3.98E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
6.15E-01
1.25E+00

1.46E+00
0.00E+00
2.25E-02
4.10E-01
3.70E-02
9.48E-02
2.22E-01
3.37E-01
3.85E-02
1.49E-01
1.00E+00
1.47E+01
1.20E+01
6.15E-01
1.00E-01
1.00E+15
5.53E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb15
1.00E-08
-2.00E+20
0.00E+00
3.86E-01
2.26E+00
3.86E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
7.14E-01
1.31E+00
1.48E+00
0.00E+00
2.38E-02
4.20E-01
4.25E-02
1.06E-01
2.21E-01
3.39E-01
4.43E-02
1.54E-01
1.00E+00
1.45E+01
1.19E+01

7.14E-01
1.50E-01
1.00E+15
5.45E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb20
1.00E-08
-2.00E+20
0.00E+00
3.75E-01
2.45E+00
3.75E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
8.14E-01
1.37E+00
1.50E+00
0.00E+00
2.50E-02
4.30E-01
4.80E-02
1.18E-01
2.20E-01
3.42E-01
5.00E-02
1.59E-01
1.00E+00
1.43E+01
1.18E+01
8.14E-01
2.00E-01
1.00E+15
5.38E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb25
1.00E-08
-2.00E+20
0.00E+00
3.64E-01

2.64E+00
3.64E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
9.13E-01
1.42E+00
1.51E+00
0.00E+00
2.63E-02
4.40E-01
5.35E-02
1.29E-01
2.19E-01
3.44E-01
5.58E-02
1.63E-01
1.00E+00
1.41E+01
1.16E+01
9.13E-01
2.50E-01
1.00E+15
5.30E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb30
1.00E-08
-2.00E+20
0.00E+00
3.53E-01
2.83E+00
3.53E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
1.01E+00
1.48E+00
1.53E+00
0.00E+00
2.75E-02
4.50E-01

5.90E-02
1.40E-01
2.18E-01
3.46E-01
6.15E-02
1.68E-01
1.00E+00
1.39E+01
1.15E+01
1.01E+00
3.00E-01
1.00E+15
5.22E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb35
1.00E-08
-2.00E+20
0.00E+00
3.41E-01
3.01E+00
3.41E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
1.11E+00
1.54E+00
1.54E+00
0.00E+00
2.88E-02
4.60E-01
6.45E-02
1.52E-01
2.17E-01
3.48E-01
6.73E-02
1.72E-01
1.00E+00
1.37E+01
1.13E+01
1.11E+00
3.50E-01
1.00E+15
5.15E+03

2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb40
1.00E-08
-2.00E+20
0.00E+00
3.30E-01
3.88E+00
3.30E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
1.21E+00
1.60E+00
1.56E+00
0.00E+00
3.00E-02
4.70E-01
7.00E-02
1.63E-01
2.16E-01
3.50E-01
7.30E-02
1.77E-01
1.00E+00
1.35E+01
1.12E+01
1.21E+00
4.00E-01
1.00E+15
5.07E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb45
1.00E-08
-2.00E+20
0.00E+00
3.19E-01
4.15E+00
3.19E-01
1.55E+04
1.00E+00

1.00E+00
3.50E+12
8.00E+00
1.31E+00
1.66E+00
1.58E+00
0.00E+00
3.13E-02
4.80E-01
7.55E-02
1.74E-01
2.15E-01
3.52E-01
7.88E-02
1.82E-01
1.00E+00
1.33E+01
1.11E+01
1.31E+00
4.50E-01
1.00E+15
4.99E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb50
1.00E-08
-2.00E+20
0.00E+00
3.08E-01
4.43E+00
3.08E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
1.41E+00
1.72E+00
1.59E+00
0.00E+00
3.25E-02
4.90E-01
8.10E-02
1.86E-01
2.14E-01
3.54E-01

8.45E-02
1.86E-01
1.00E+00
1.31E+01
1.09E+01
1.41E+00
5.00E-01
1.00E+15
4.92E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb55
1.00E-08
-2.00E+20
0.00E+00
2.96E-01
4.70E+00
2.96E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
1.51E+00
1.78E+00
1.61E+00
0.00E+00
3.38E-02
5.00E-01
8.65E-02
1.97E-01
2.13E-01
3.56E-01
9.03E-02
1.91E-01
1.00E+00
1.29E+01
1.08E+01
1.51E+00
5.50E-01
1.00E+15
4.84E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02

InAlAsSb60

1.00E-08

-2.00E+20

0.00E+00

2.85E-01

4.97E+00

2.85E-01

1.55E+04

1.00E+00

1.00E+00

3.50E+12

8.00E+00

1.61E+00

1.83E+00

1.62E+00

0.00E+00

3.50E-02

5.10E-01

9.20E-02

2.09E-01

2.12E-01

3.59E-01

9.60E-02

1.96E-01

1.00E+00

1.27E+01

1.07E+01

1.61E+00

6.00E-01

1.00E+15

4.77E+03

2.95E+03

1.10E-02

2.40E-02

1.30E-02

InAlAsSb65

1.00E-08

-2.00E+20

0.00E+00

2.74E-01

5.24E+00

2.74E-01

1.55E+04

1.00E+00

1.00E+00

3.50E+12

8.00E+00

1.71E+00

1.89E+00
1.64E+00
0.00E+00
3.63E-02
5.20E-01
9.75E-02
2.20E-01
2.11E-01
3.61E-01
1.02E-01
2.00E-01
1.00E+00
1.25E+01
1.05E+01
1.71E+00
6.50E-01
1.00E+15
4.69E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb70
1.00E-08
-2.00E+20
0.00E+00
2.63E-01
5.52E+00
2.63E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
1.80E+00
1.95E+00
1.66E+00
0.00E+00
3.75E-02
5.30E-01
1.03E-01
2.31E-01
2.10E-01
3.63E-01
1.08E-01
2.05E-01
1.00E+00
1.23E+01

1.04E+01
1.80E+00
7.00E-01
1.00E+15
4.61E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAs
200.1e-9
-2.0e24
0
0.42
1.7
0.42
15500
1.00
1.00
3.5e12
8e0
0.417
1.133
1.433
0
0.02
0.39
0.026
0.072
0.224
0.333
0.027
0.14
1.0
15.15
12.3
0.417
0
1.0e15
5680
2945
0.011
0.024
0.013
endstructure
end

Single-Step Staircase (no GaSb)

Input File

pin1.prm
tem
300
photonev
1.43
impfac
1
DeltaEg
0.05
IO
10000
max_time
1e-8
min_time
1e-17
Vapp
0
Vinc
0.5
Vbi
0
max_gain
100
max_steps
21
stat_bin
1
structfilename
structpin1.txt
gainfilename
gainpin1.txt
distrfilename
distrpin1.txt
freqfilename
freqpin1.txt
carrierfilename
carrierpin1.txt
swk0filename
swk0inalas190.out
swk1filename
swk1inalas190.out
swk2filename
swk2inalas190.out
swkHfilename
swkHinalas190.out

structure
InAlAsSb70
30.00E-09
1.00E+25
5.50E+00
0.98
3.40
10.00
15500.00
1.00
3.00
5.00E+13
8.00E+00
0.610
1.790
1.640
0.523
0.523
1.170
0.071
0.134
1.290
0.350
0.073
0.177
1.000
15.530
11.700
1.13
0.700
1.00E+15
5.07E+03
2.95E+03
0.011
0.024
0.013
InAlAsSb70
101.00E-09
1.00E+24
4.40E+06
0.98
3.40
10.00
15500.00
1.00
3.00
5.00E+13
8.00E+00

0.610
1.790
1.640
0.523
0.523
1.170
0.071
0.134
1.290
0.350
0.073
0.177
1.000
15.530
11.700
1.13
0.700
1.00E+15
5.07E+03
2.95E+03
0.011
0.024
0.013
InAlAsSb70
631.00E-09
2.00E+22
4.40E+06
0.98
3.40
10.00
15500.00
1.00
3.00
5.00E+13
8.00E+00
0.610
1.790
1.640
0.523
0.523
1.170
0.071
0.134
1.290
0.350
0.073
0.177
1.000

15.530
11.700
1.13
0.700
1.00E+15
5.07E+03
2.95E+03
0.011
0.024
0.013
InAlAsSb70
200.00E-09
-1.00E+24
0.00E+00
0.98
3.40
10.00
15500.00
1.00
3.00
5.00E+13
8.00E+00
0.610
1.790
1.640
0.523
0.523
1.170
0.071
0.134
1.290
0.350
0.073
0.177
1.000
15.530
11.700
1.13
0.700
1.00E+15
5.07E+03
2.95E+03
0.011
0.024
0.013
endstructure
end

Two-Step Staircase

Input File

pin1.prm
tem
300
photonev
1.43
impfac
1
DeltaEg
0.05
IO
10000
max_time
1e-8
min_time
1e-17
Vapp
0
Vinc
0.5
Vbi
0
max_gain
100
max_steps
21
stat_bin
1
structfilename
structpin1.txt
gainfilename
gainpin1.txt
distrfilename
distrpin1.txt
freqfilename
freqpin1.txt
carrierfilename
carrierpin1.txt
swk0filename
swk0inalas190.out
swk1filename
swk1inalas190.out
swk2filename
swk2inalas190.out
swkHfilename
swkHinalas190.out

structure
InAlAsSb70
100.00E-09
1.00E+24
1.00E+08
0.57E+00
1.00E+00
3.30E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
0.96E+00
1.42E+00
1.38E+00
0.18E+00
0.21E+00
0.65E+00
7.00E-02
1.63E-01
2.16E-01
3.50E-01
7.30E-02
1.77E-01
1.00E+00
1.35E+01
1.12E+01
1.14E+00
7.00E-01
1.00E+15
5.07E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb70
500.00E-09
2.00E+22
0.00E+00
0.57E+00
1.00E+00
3.30E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00

0.96E+00
1.42E+00
1.38E+00
0.18E+00
0.21E+00
0.65E+00
7.00E-02
1.63E-01
2.16E-01
3.50E-01
7.30E-02
1.77E-01
1.00E+00
1.35E+01
1.12E+01
1.14E+00
7.00E-01
1.00E+15
5.07E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb65
3.00E-09
2.00E+22
0.00E+00
0.54E+00
1.00E+00
3.36E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
9.01E-01
1.39E+00
1.37E+00
1.79E-01
2.08E-01
6.43E-01
6.69E-02
1.57E-01
2.17E-01
3.49E-01
6.97E-02
1.74E-01
1.00E+00

1.36E+01
1.13E+01
1.08E+00
6.50E-01
1.00E+15
5.11E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb60
3.00E-09
2.00E+22
0.00E+00
0.50E+00
1.00E+00
3.43E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
8.67E-01
1.39E+00
1.40E+00
1.43E-01
1.72E-01
6.02E-01
6.37E-02
1.50E-01
2.17E-01
3.48E-01
6.64E-02
1.72E-01
1.00E+00
1.37E+01
1.14E+01
1.01E+00
6.00E-01
1.00E+15
5.16E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb55
3.00E-09
2.00E+22

0.00E+00
0.47E+00
1.00E+00
3.49E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
8.24E-01
1.37E+00
1.40E+00
1.26E-01
1.54E-01
5.79E-01
6.06E-02
1.44E-01
2.18E-01
3.46E-01
6.31E-02
1.69E-01
1.00E+00
1.39E+01
1.14E+01
9.50E-01
5.50E-01
1.00E+15
5.20E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb50
3.00E-09
2.00E+22
0.00E+00
0.44E+00
1.00E+00
3.56E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
7.76E-01
1.36E+00
1.41E+00
1.10E-01

1.37E-01
5.57E-01
5.74E-02
1.37E-01
2.18E-01
3.45E-01
5.99E-02
1.66E-01
1.00E+00
1.40E+01
1.15E+01
8.86E-01
5.00E-01
1.00E+15
5.24E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb45
3.00E-09
2.00E+22
0.00E+00
0.41E+00
1.00E+00
3.62E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
7.28E-01
1.35E+00
1.42E+00
9.50E-02
1.21E-01
5.36E-01
5.43E-02
1.31E-01
2.19E-01
3.44E-01
5.66E-02
1.64E-01
1.00E+00
1.41E+01
1.16E+01
8.23E-01
4.50E-01

1.00E+15
5.29E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb40
3.00E-09
2.00E+22
0.00E+00
0.38E+00
1.00E+00
3.69E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
6.78E-01
1.32E+00
1.42E+00
8.10E-02
1.07E-01
5.17E-01
5.11E-02
1.24E-01
2.19E-01
3.43E-01
5.33E-02
1.61E-01
1.00E+00
1.42E+01
1.17E+01
7.59E-01
4.00E-01
1.00E+15
5.33E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb35
3.00E-09
2.00E+22
0.00E+00
0.35E+00
1.00E+00
3.75E-01

1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
6.28E-01
1.30E+00
1.43E+00
6.80E-02
9.30E-02
4.98E-01
4.80E-02
1.18E-01
2.20E-01
3.42E-01
5.00E-02
1.59E-01
1.00E+00
1.44E+01
1.18E+01
6.96E-01
3.50E-01
1.00E+15
5.38E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb30
3.00E-09
2.00E+22
0.00E+00
3.16E-01
1.00E+00
3.81E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
5.77E-01
1.28E+00
1.43E+00
5.60E-02
8.03E-02
4.80E-01
4.49E-02
1.11E-01

2.21E-01
3.40E-01
4.67E-02
1.56E-01
1.00E+00
1.45E+01
1.18E+01
6.33E-01
3.00E-01
1.00E+15
5.42E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
lnAlAsSb25
3.00E-09
2.00E+22
0.00E+00
2.84E-01
1.00E+00
3.88E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
5.25E-01
1.26E+00
1.44E+00
4.40E-02
6.76E-02
4.63E-01
4.17E-02
1.05E-01
2.21E-01
3.39E-01
4.34E-02
1.53E-01
1.00E+00
1.46E+01
1.19E+01
5.69E-01
2.50E-01
1.00E+15
5.46E+03
2.95E+03
1.10E-02

2.40E-02
1.30E-02
InAlAsSb20
3.00E-09
2.00E+22
0.00E+00
2.53E-01
1.00E+00
3.94E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
4.73E-01
1.23E+00
1.44E+00
3.30E-02
5.59E-02
4.46E-01
3.86E-02
9.80E-02
2.22E-01
3.38E-01
4.01E-02
1.51E-01
1.00E+00
1.47E+01
1.20E+01
5.06E-01
2.00E-01
1.00E+15
5.51E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb15
3.00E-09
2.00E+22
0.00E+00
2.20E-01
1.00E+00
4.01E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12

8.00E+00
4.18E-01
1.21E+00
1.44E+00
2.40E-02
4.61E-02
4.31E-01
3.54E-02
9.15E-02
2.22E-01
3.37E-01
3.69E-02
1.48E-01
1.00E+00
1.48E+01
1.21E+01
4.42E-01
1.50E-01
1.00E+15
5.55E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
lnAlAsSb10
3.00E-09
2.00E+22
0.00E+00
1.91E-01
1.00E+00
4.07E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
3.64E-01
1.19E+00
1.44E+00
1.50E-02
3.64E-02
4.16E-01
3.23E-02
8.50E-02
2.23E-01
3.35E-01
3.36E-02
1.45E-01

1.00E+00
1.50E+01
1.21E+01
3.79E-01
1.00E-01
1.00E+15
5.59E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
lnAlAsSb05
3.00E-09
2.00E+22
0.00E+00
1.57E-01
1.00E+00
4.14E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
3.08E-01
1.15E+00
1.43E+00
7.00E-03
2.77E-02
4.03E-01
2.91E-02
7.85E-02
2.23E-01
3.34E-01
3.03E-02
1.43E-01
1.00E+00
1.51E+01
1.22E+01
3.15E-01
5.00E-02
1.00E+15
5.64E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
lnAsSb
6.00E-09

2.00E+22
0.00E+00
1.00E-01
1.00E+00
4.20E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
2.52E-01
1.13E+00
1.43E+00
0.00E+00
2.00E-02
3.90E-01
2.60E-02
7.20E-02
2.24E-01
3.33E-01
2.70E-02
1.40E-01
1.00E+00
1.52E+01
1.23E+01
2.52E-01
0.00E+00
1.00E+15
5.68E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb05
1.20E-08
2.00E+22
0.00E+00
1.57E-01
1.00E+00
4.14E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
3.08E-01
1.15E+00
1.43E+00

7.00E-03
2.77E-02
4.03E-01
2.91E-02
7.85E-02
2.23E-01
3.34E-01
3.03E-02
1.43E-01
1.00E+00
1.51E+01
1.22E+01
3.15E-01
5.00E-02
1.00E+15
5.64E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb10
1.20E-08
2.00E+22
0.00E+00
1.91E-01
1.00E+00
4.07E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
3.64E-01
1.19E+00
1.44E+00
1.50E-02
3.64E-02
4.16E-01
3.23E-02
8.50E-02
2.23E-01
3.35E-01
3.36E-02
1.45E-01
1.00E+00
1.50E+01
1.21E+01
3.79E-01

1.00E-01
1.00E+15
5.59E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb15
1.20E-08
2.00E+22
0.00E+00
2.20E-01
1.00E+00
4.01E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
4.18E-01
1.21E+00
1.44E+00
2.40E-02
4.61E-02
4.31E-01
3.54E-02
9.15E-02
2.22E-01
3.37E-01
3.69E-02
1.48E-01
1.00E+00
1.48E+01
1.21E+01
4.42E-01
1.50E-01
1.00E+15
5.55E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb20
1.20E-08
2.00E+22
0.00E+00
2.53E-01
1.00E+00

3.94E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
4.73E-01
1.23E+00
1.44E+00
3.30E-02
5.59E-02
4.46E-01
3.86E-02
9.80E-02
2.22E-01
3.38E-01
4.01E-02
1.51E-01
1.00E+00
1.47E+01
1.20E+01
5.06E-01
2.00E-01
1.00E+15
5.51E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb25
1.20E-08
2.00E+22
0.00E+00
2.84E-01
1.00E+00
3.88E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
5.25E-01
1.26E+00
1.44E+00
4.40E-02
6.76E-02
4.63E-01
4.17E-02

1.05E-01
2.21E-01
3.39E-01
4.34E-02
1.53E-01
1.00E+00
1.46E+01
1.19E+01
5.69E-01
2.50E-01
1.00E+15
5.46E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb30
1.20E-08
2.00E+22
0.00E+00
3.16E-01
1.00E+00
3.81E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
5.77E-01
1.28E+00
1.43E+00
5.60E-02
8.03E-02
4.80E-01
4.49E-02
1.11E-01
2.21E-01
3.40E-01
4.67E-02
1.56E-01
1.00E+00
1.45E+01
1.18E+01
6.33E-01
3.00E-01
1.00E+15
5.42E+03
2.95E+03

1.10E-02
2.40E-02
1.30E-02
InAlAsSb35
1.20E-08
2.00E+22
0.00E+00
0.35E+00
1.00E+00
3.75E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
6.28E-01
1.30E+00
1.43E+00
6.80E-02
9.30E-02
4.98E-01
4.80E-02
1.18E-01
2.20E-01
3.42E-01
5.00E-02
1.59E-01
1.00E+00
1.44E+01
1.18E+01
6.96E-01
3.50E-01
1.00E+15
5.38E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb40
1.20E-08
2.00E+22
0.00E+00
0.38E+00
1.00E+00
3.69E-01
1.55E+04
1.00E+00
1.00E+00

3.50E+12
8.00E+00
6.78E-01
1.32E+00
1.42E+00
8.10E-02
1.07E-01
5.17E-01
5.11E-02
1.24E-01
2.19E-01
3.43E-01
5.33E-02
1.61E-01
1.00E+00
1.42E+01
1.17E+01
7.59E-01
4.00E-01
1.00E+15
5.33E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb45
1.20E-08
2.00E+22
0.00E+00
0.41E+00
1.00E+00
3.62E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
7.28E-01
1.35E+00
1.42E+00
9.50E-02
1.21E-01
5.36E-01
5.43E-02
1.31E-01
2.19E-01
3.44E-01
5.66E-02

1.64E-01
1.00E+00
1.41E+01
1.16E+01
8.23E-01
4.50E-01
1.00E+15
5.29E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb50
1.20E-08
2.00E+22
0.00E+00
0.44E+00
1.00E+00
3.56E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
7.76E-01
1.36E+00
1.41E+00
1.10E-01
1.37E-01
5.57E-01
5.74E-02
1.37E-01
2.18E-01
3.45E-01
5.99E-02
1.66E-01
1.00E+00
1.40E+01
1.15E+01
8.86E-01
5.00E-01
1.00E+15
5.24E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb55

1.20E-08
2.00E+22
0.00E+00
0.47E+00
1.00E+00
3.49E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
8.24E-01
1.37E+00
1.40E+00
1.26E-01
1.54E-01
5.79E-01
6.06E-02
1.44E-01
2.18E-01
3.46E-01
6.31E-02
1.69E-01
1.00E+00
1.39E+01
1.14E+01
9.50E-01
5.50E-01
1.00E+15
5.20E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb60
1.20E-08
2.00E+22
0.00E+00
0.50E+00
1.00E+00
3.43E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
8.67E-01
1.39E+00

1.40E+00
1.43E-01
1.72E-01
6.02E-01
6.37E-02
1.50E-01
2.17E-01
3.48E-01
6.64E-02
1.72E-01
1.00E+00
1.37E+01
1.14E+01
1.01E+00
6.00E-01
1.00E+15
5.16E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb65
1.20E-08
2.00E+22
0.00E+00
0.54E+00
1.00E+00
3.36E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
9.01E-01
1.39E+00
1.37E+00
1.79E-01
2.08E-01
6.43E-01
6.69E-02
1.57E-01
2.17E-01
3.49E-01
6.97E-02
1.74E-01
1.00E+00
1.36E+01
1.13E+01

1.08E+00
6.50E-01
1.00E+15
5.11E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb70
1.20E-08
2.00E+22
0.00E+00
1.71E+00
3.20E+00
3.30E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
0.96E+00
1.42E+00
1.38E+00
0.18E+00
0.21E+00
0.65E+00
7.00E-02
1.63E-01
2.16E-01
3.50E-01
7.30E-02
1.77E-01
1.00E+00
1.35E+01
1.12E+01
1.14E+00
7.00E-01
1.00E+15
5.07E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb70
1.00E-07
2.00E+22
0.00E+00
1.71E+00

3.20E+00
3.30E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
0.96E+00
1.42E+00
1.38E+00
0.18E+00
0.21E+00
0.65E+00
7.00E-02
1.63E-01
2.16E-01
3.50E-01
7.30E-02
1.77E-01
1.00E+00
1.35E+01
1.12E+01
1.14E+00
7.00E-01
1.00E+15
5.07E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb70
3.00E-09
2.00E+22
0.00E+00
0.57E+00
1.00E+00
3.30E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
0.96E+00
1.42E+00
1.38E+00
0.18E+00
0.21E+00
0.65E+00

7.00E-02
1.63E-01
2.16E-01
3.50E-01
7.30E-02
1.77E-01
1.00E+00
1.35E+01
1.12E+01
1.14E+00
7.00E-01
1.00E+15
5.07E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb65
3.00E-09
2.00E+22
0.00E+00
0.54E+00
1.00E+00
3.36E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
9.01E-01
1.39E+00
1.37E+00
1.79E-01
2.08E-01
6.43E-01
6.69E-02
1.57E-01
2.17E-01
3.49E-01
6.97E-02
1.74E-01
1.00E+00
1.36E+01
1.13E+01
1.08E+00
6.50E-01
1.00E+15
5.11E+03

2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb60
3.00E-09
2.00E+22
0.00E+00
0.50E+00
1.00E+00
3.43E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
8.67E-01
1.39E+00
1.40E+00
1.43E-01
1.72E-01
6.02E-01
6.37E-02
1.50E-01
2.17E-01
3.48E-01
6.64E-02
1.72E-01
1.00E+00
1.37E+01
1.14E+01
1.01E+00
6.00E-01
1.00E+15
5.16E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb55
3.00E-09
2.00E+22
0.00E+00
0.47E+00
1.00E+00
3.49E-01
1.55E+04
1.00E+00

1.00E+00
3.50E+12
8.00E+00
8.24E-01
1.37E+00
1.40E+00
1.26E-01
1.54E-01
5.79E-01
6.06E-02
1.44E-01
2.18E-01
3.46E-01
6.31E-02
1.69E-01
1.00E+00
1.39E+01
1.14E+01
9.50E-01
5.50E-01
1.00E+15
5.20E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb50
3.00E-09
2.00E+22
0.00E+00
0.44E+00
1.00E+00
3.56E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
7.76E-01
1.36E+00
1.41E+00
1.10E-01
1.37E-01
5.57E-01
5.74E-02
1.37E-01
2.18E-01
3.45E-01

5.99E-02
1.66E-01
1.00E+00
1.40E+01
1.15E+01
8.86E-01
5.00E-01
1.00E+15
5.24E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb45
3.00E-09
2.00E+22
0.00E+00
0.41E+00
1.00E+00
3.62E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
7.28E-01
1.35E+00
1.42E+00
9.50E-02
1.21E-01
5.36E-01
5.43E-02
1.31E-01
2.19E-01
3.44E-01
5.66E-02
1.64E-01
1.00E+00
1.41E+01
1.16E+01
8.23E-01
4.50E-01
1.00E+15
5.29E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02

InAlAsSb40

3.00E-09

2.00E+22

0.00E+00

0.38E+00

1.00E+00

3.69E-01

1.55E+04

1.00E+00

1.00E+00

3.50E+12

8.00E+00

6.78E-01

1.32E+00

1.42E+00

8.10E-02

1.07E-01

5.17E-01

5.11E-02

1.24E-01

2.19E-01

3.43E-01

5.33E-02

1.61E-01

1.00E+00

1.42E+01

1.17E+01

7.59E-01

4.00E-01

1.00E+15

5.33E+03

2.95E+03

1.10E-02

2.40E-02

1.30E-02

InAlAsSb35

3.00E-09

2.00E+22

0.00E+00

0.35E+00

1.00E+00

3.75E-01

1.55E+04

1.00E+00

1.00E+00

3.50E+12

8.00E+00

6.28E-01

1.30E+00
1.43E+00
6.80E-02
9.30E-02
4.98E-01
4.80E-02
1.18E-01
2.20E-01
3.42E-01
5.00E-02
1.59E-01
1.00E+00
1.44E+01
1.18E+01
6.96E-01
3.50E-01
1.00E+15
5.38E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb30
3.00E-09
2.00E+22
0.00E+00
3.16E-01
1.00E+00
3.81E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
5.77E-01
1.28E+00
1.43E+00
5.60E-02
8.03E-02
4.80E-01
4.49E-02
1.11E-01
2.21E-01
3.40E-01
4.67E-02
1.56E-01
1.00E+00
1.45E+01

1.18E+01
6.33E-01
3.00E-01
1.00E+15
5.42E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb25
3.00E-09
2.00E+22
0.00E+00
2.84E-01
1.00E+00
3.88E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
5.25E-01
1.26E+00
1.44E+00
4.40E-02
6.76E-02
4.63E-01
4.17E-02
1.05E-01
2.21E-01
3.39E-01
4.34E-02
1.53E-01
1.00E+00
1.46E+01
1.19E+01
5.69E-01
2.50E-01
1.00E+15
5.46E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb20
3.00E-09
2.00E+22
0.00E+00

2.53E-01
1.00E+00
3.94E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
4.73E-01
1.23E+00
1.44E+00
3.30E-02
5.59E-02
4.46E-01
3.86E-02
9.80E-02
2.22E-01
3.38E-01
4.01E-02
1.51E-01
1.00E+00
1.47E+01
1.20E+01
5.06E-01
2.00E-01
1.00E+15
5.51E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb15
3.00E-09
2.00E+22
0.00E+00
2.20E-01
1.00E+00
4.01E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
4.18E-01
1.21E+00
1.44E+00
2.40E-02
4.61E-02

4.31E-01
3.54E-02
9.15E-02
2.22E-01
3.37E-01
3.69E-02
1.48E-01
1.00E+00
1.48E+01
1.21E+01
4.42E-01
1.50E-01
1.00E+15
5.55E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb10
3.00E-09
2.00E+22
0.00E+00
1.91E-01
1.00E+00
4.07E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
3.64E-01
1.19E+00
1.44E+00
1.50E-02
3.64E-02
4.16E-01
3.23E-02
8.50E-02
2.23E-01
3.35E-01
3.36E-02
1.45E-01
1.00E+00
1.50E+01
1.21E+01
3.79E-01
1.00E-01
1.00E+15

5.59E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb05
3.00E-09
2.00E+22
0.00E+00
1.57E-01
1.00E+00
4.14E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
3.08E-01
1.15E+00
1.43E+00
7.00E-03
2.77E-02
4.03E-01
2.91E-02
7.85E-02
2.23E-01
3.34E-01
3.03E-02
1.43E-01
1.00E+00
1.51E+01
1.22E+01
3.15E-01
5.00E-02
1.00E+15
5.64E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAsSb
6.00E-09
2.00E+22
0.00E+00
1.00E-01
1.00E+00
4.20E-01
1.55E+04

1.00E+00
1.00E+00
3.50E+12
8.00E+00
2.52E-01
1.13E+00
1.43E+00
0.00E+00
2.00E-02
3.90E-01
2.60E-02
7.20E-02
2.24E-01
3.33E-01
2.70E-02
1.40E-01
1.00E+00
1.52E+01
1.23E+01
2.52E-01
0.00E+00
1.00E+15
5.68E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb05
1.20E-08
2.00E+22
0.00E+00
1.57E-01
1.00E+00
4.14E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
3.08E-01
1.15E+00
1.43E+00
7.00E-03
2.77E-02
4.03E-01
2.91E-02
7.85E-02
2.23E-01

3.34E-01
3.03E-02
1.43E-01
1.00E+00
1.51E+01
1.22E+01
3.15E-01
5.00E-02
1.00E+15
5.64E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb10
1.20E-08
2.00E+22
0.00E+00
1.91E-01
1.00E+00
4.07E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
3.64E-01
1.19E+00
1.44E+00
1.50E-02
3.64E-02
4.16E-01
3.23E-02
8.50E-02
2.23E-01
3.35E-01
3.36E-02
1.45E-01
1.00E+00
1.50E+01
1.21E+01
3.79E-01
1.00E-01
1.00E+15
5.59E+03
2.95E+03
1.10E-02
2.40E-02

1.30E-02
InAlAsSb15
1.20E-08
2.00E+22
0.00E+00
2.20E-01
1.00E+00
4.01E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
4.18E-01
1.21E+00
1.44E+00
2.40E-02
4.61E-02
4.31E-01
3.54E-02
9.15E-02
2.22E-01
3.37E-01
3.69E-02
1.48E-01
1.00E+00
1.48E+01
1.21E+01
4.42E-01
1.50E-01
1.00E+15
5.55E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb20
1.20E-08
2.00E+22
0.00E+00
2.53E-01
1.00E+00
3.94E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00

4.73E-01
1.23E+00
1.44E+00
3.30E-02
5.59E-02
4.46E-01
3.86E-02
9.80E-02
2.22E-01
3.38E-01
4.01E-02
1.51E-01
1.00E+00
1.47E+01
1.20E+01
5.06E-01
2.00E-01
1.00E+15
5.51E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb25
1.20E-08
2.00E+22
0.00E+00
2.84E-01
1.00E+00
3.88E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
5.25E-01
1.26E+00
1.44E+00
4.40E-02
6.76E-02
4.63E-01
4.17E-02
1.05E-01
2.21E-01
3.39E-01
4.34E-02
1.53E-01
1.00E+00

1.46E+01
1.19E+01
5.69E-01
2.50E-01
1.00E+15
5.46E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb30
1.20E-08
2.00E+22
0.00E+00
3.16E-01
1.00E+00
3.81E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
5.77E-01
1.28E+00
1.43E+00
5.60E-02
8.03E-02
4.80E-01
4.49E-02
1.11E-01
2.21E-01
3.40E-01
4.67E-02
1.56E-01
1.00E+00
1.45E+01
1.18E+01
6.33E-01
3.00E-01
1.00E+15
5.42E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb35
1.20E-08
2.00E+22

0.00E+00
0.35E+00
1.00E+00
3.75E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
6.28E-01
1.30E+00
1.43E+00
6.80E-02
9.30E-02
4.98E-01
4.80E-02
1.18E-01
2.20E-01
3.42E-01
5.00E-02
1.59E-01
1.00E+00
1.44E+01
1.18E+01
6.96E-01
3.50E-01
1.00E+15
5.38E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb40
1.20E-08
2.00E+22
0.00E+00
0.38E+00
1.00E+00
3.69E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
6.78E-01
1.32E+00
1.42E+00
8.10E-02

1.07E-01
5.17E-01
5.11E-02
1.24E-01
2.19E-01
3.43E-01
5.33E-02
1.61E-01
1.00E+00
1.42E+01
1.17E+01
7.59E-01
4.00E-01
1.00E+15
5.33E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb45
1.20E-08
2.00E+22
0.00E+00
0.41E+00
1.00E+00
3.62E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
7.28E-01
1.35E+00
1.42E+00
9.50E-02
1.21E-01
5.36E-01
5.43E-02
1.31E-01
2.19E-01
3.44E-01
5.66E-02
1.64E-01
1.00E+00
1.41E+01
1.16E+01
8.23E-01
4.50E-01

1.00E+15
5.29E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb50
1.20E-08
2.00E+22
0.00E+00
0.44E+00
1.00E+00
3.56E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
7.76E-01
1.36E+00
1.41E+00
1.10E-01
1.37E-01
5.57E-01
5.74E-02
1.37E-01
2.18E-01
3.45E-01
5.99E-02
1.66E-01
1.00E+00
1.40E+01
1.15E+01
8.86E-01
5.00E-01
1.00E+15
5.24E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb55
1.20E-08
2.00E+22
0.00E+00
0.47E+00
1.00E+00
3.49E-01

1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
8.24E-01
1.37E+00
1.40E+00
1.26E-01
1.54E-01
5.79E-01
6.06E-02
1.44E-01
2.18E-01
3.46E-01
6.31E-02
1.69E-01
1.00E+00
1.39E+01
1.14E+01
9.50E-01
5.50E-01
1.00E+15
5.20E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb60
1.20E-08
2.00E+22
0.00E+00
0.50E+00
1.00E+00
3.43E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
8.67E-01
1.39E+00
1.40E+00
1.43E-01
1.72E-01
6.02E-01
6.37E-02
1.50E-01

2.17E-01
3.48E-01
6.64E-02
1.72E-01
1.00E+00
1.37E+01
1.14E+01
1.01E+00
6.00E-01
1.00E+15
5.16E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb65
1.20E-08
2.00E+22
0.00E+00
0.54E+00
1.00E+00
3.36E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
9.01E-01
1.39E+00
1.37E+00
1.79E-01
2.08E-01
6.43E-01
6.69E-02
1.57E-01
2.17E-01
3.49E-01
6.97E-02
1.74E-01
1.00E+00
1.36E+01
1.13E+01
1.08E+00
6.50E-01
1.00E+15
5.11E+03
2.95E+03
1.10E-02

2.40E-02
1.30E-02
lnAlAsSb70
1.20E-08
2.00E+22
0.00E+00
1.71E+00
3.20E+00
3.30E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
0.96E+00
1.42E+00
1.38E+00
0.18E+00
0.21E+00
0.65E+00
7.00E-02
1.63E-01
2.16E-01
3.50E-01
7.30E-02
1.77E-01
1.00E+00
1.35E+01
1.12E+01
1.14E+00
7.00E-01
1.00E+15
5.07E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
lnAlAsSb70
2.00E-07
-2.00E+24
0.00E+00
1.71E+00
3.20E+00
3.30E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12

8.00E+00
0.96E+00
1.42E+00
1.38E+00
0.18E+00
0.21E+00
0.65E+00
7.00E-02
1.63E-01
2.16E-01
3.50E-01
7.30E-02
1.77E-01
1.00E+00
1.35E+01
1.12E+01
1.14E+00
7.00E-01
1.00E+15
5.07E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
endstructure
end

Three-Step Staircase

Input File

pin1.prm
tem
300
photonev
1.43
impfac
1
DeltaEg
0.05
IO
1000
max_time
1e-8
min_time
1e-17
Vapp
0
Vinc
0.5
Vbi
0
max_gain
100
max_steps
21
stat_bin
1
structfilename
structpin1.txt
gainfilename
gainpin1.txt
distrfilename
distrpin1.txt
freqfilename
freqpin1.txt
carrierfilename
carrierpin1.txt
swk0filename
swk0inalas190.out
swk1filename
swk1inalas190.out
swk2filename
swk2inalas190.out
swkHfilename
swkHinalas190.out

structure
InAlAsSb70
101.00E-09
1.00E+24
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
0.96E+00
1.42E+00
1.38E+00
0.18E+00
0.21E+00
0.65E+00
7.00E-02
1.63E-01
2.16E-01
3.50E-01
7.30E-02
1.77E-01
1.00E+00
1.35E+01
1.12E+01
1.14E+00
7.00E-01
1.00E+15
5.07E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb70
501.00E-09
2.00E+22
3.00E+08
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14

0.96E+00
1.42E+00
1.38E+00
0.18E+00
0.21E+00
0.65E+00
7.00E-02
1.63E-01
2.16E-01
3.50E-01
7.30E-02
1.77E-01
1.00E+00
1.35E+01
1.12E+01
1.14E+00
7.00E-01
1.00E+15
5.07E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb60
6.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
8.67E-01
1.39E+00
1.40E+00
1.43E-01
1.72E-01
6.02E-01
6.37E-02
1.50E-01
2.17E-01
3.48E-01
6.64E-02
1.72E-01
1.00E+00

1.37E+01
1.14E+01
1.01E+00
6.00E-01
1.00E+15
5.16E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb50
6.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
7.76E-01
1.36E+00
1.41E+00
1.10E-01
1.37E-01
5.57E-01
5.74E-02
1.37E-01
2.18E-01
3.45E-01
5.99E-02
1.66E-01
1.00E+00
1.40E+01
1.15E+01
8.86E-01
5.00E-01
1.00E+15
5.24E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb40
6.00E-09
2.00E+22

0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
6.78E-01
1.32E+00
1.42E+00
8.10E-02
1.07E-01
5.17E-01
5.11E-02
1.24E-01
2.19E-01
3.43E-01
5.33E-02
1.61E-01
1.00E+00
1.42E+01
1.17E+01
7.59E-01
4.00E-01
1.00E+15
5.33E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb30
6.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
5.77E-01
1.28E+00
1.43E+00
5.60E-02

8.03E-02
4.80E-01
4.49E-02
1.11E-01
2.21E-01
3.40E-01
4.67E-02
1.56E-01
1.00E+00
1.45E+01
1.18E+01
6.33E-01
3.00E-01
1.00E+15
5.42E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb20
6.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
4.73E-01
1.23E+00
1.44E+00
3.30E-02
5.59E-02
4.46E-01
3.86E-02
9.80E-02
2.22E-01
3.38E-01
4.01E-02
1.51E-01
1.00E+00
1.47E+01
1.20E+01
5.06E-01
2.00E-01

1.00E+15
5.51E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb10
6.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
3.64E-01
1.19E+00
1.44E+00
1.50E-02
3.64E-02
4.16E-01
3.23E-02
8.50E-02
2.23E-01
3.35E-01
3.36E-02
1.45E-01
1.00E+00
1.50E+01
1.21E+01
3.79E-01
1.00E-01
1.00E+15
5.59E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAsSb
12.00E-09
2.00E+22
0.00E+00
1.00E-01
1.00E+00
4.20E-01

1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
2.52E-01
1.13E+00
1.43E+00
0.00E+00
2.00E-02
3.90E-01
2.60E-02
7.20E-02
2.24E-01
3.33E-01
2.70E-02
1.40E-01
1.00E+00
1.52E+01
1.23E+01
2.52E-01
0.00E+00
1.00E+15
5.68E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
lnAlAsSb10
12.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
3.64E-01
1.19E+00
1.44E+00
1.50E-02
3.64E-02
4.16E-01
3.23E-02
8.50E-02

2.23E-01
3.35E-01
3.36E-02
1.45E-01
1.00E+00
1.50E+01
1.21E+01
3.79E-01
1.00E-01
1.00E+15
5.59E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb20
12.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
4.73E-01
1.23E+00
1.44E+00
3.30E-02
5.59E-02
4.46E-01
3.86E-02
9.80E-02
2.22E-01
3.38E-01
4.01E-02
1.51E-01
1.00E+00
1.47E+01
1.20E+01
5.06E-01
2.00E-01
1.00E+15
5.51E+03
2.95E+03
1.10E-02

2.40E-02
1.30E-02
InAlAsSb30
12.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
5.77E-01
1.28E+00
1.43E+00
5.60E-02
8.03E-02
4.80E-01
4.49E-02
1.11E-01
2.21E-01
3.40E-01
4.67E-02
1.56E-01
1.00E+00
1.45E+01
1.18E+01
6.33E-01
3.00E-01
1.00E+15
5.42E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb40
12.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14

8.00E+14
6.78E-01
1.32E+00
1.42E+00
8.10E-02
1.07E-01
5.17E-01
5.11E-02
1.24E-01
2.19E-01
3.43E-01
5.33E-02
1.61E-01
1.00E+00
1.42E+01
1.17E+01
7.59E-01
4.00E-01
1.00E+15
5.33E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb50
12.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
7.76E-01
1.36E+00
1.41E+00
1.10E-01
1.37E-01
5.57E-01
5.74E-02
1.37E-01
2.18E-01
3.45E-01
5.99E-02
1.66E-01

1.00E+00
1.40E+01
1.15E+01
8.86E-01
5.00E-01
1.00E+15
5.24E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
lnAlAsSb60
12.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
8.67E-01
1.39E+00
1.40E+00
1.43E-01
1.72E-01
6.02E-01
6.37E-02
1.50E-01
2.17E-01
3.48E-01
6.64E-02
1.72E-01
1.00E+00
1.37E+01
1.14E+01
1.01E+00
6.00E-01
1.00E+15
5.16E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
lnAlAsSb70
1.01E-07

2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
0.96E+00
1.42E+00
1.38E+00
0.18E+00
0.21E+00
0.65E+00
7.00E-02
1.63E-01
2.16E-01
3.50E-01
7.30E-02
1.77E-01
1.00E+00
1.35E+01
1.12E+01
1.14E+00
7.00E-01
1.00E+15
5.07E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb60
6.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
8.67E-01
1.39E+00
1.40E+00

1.43E-01
1.72E-01
6.02E-01
6.37E-02
1.50E-01
2.17E-01
3.48E-01
6.64E-02
1.72E-01
1.00E+00
1.37E+01
1.14E+01
1.01E+00
6.00E-01
1.00E+15
5.16E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb50
6.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
7.76E-01
1.36E+00
1.41E+00
1.10E-01
1.37E-01
5.57E-01
5.74E-02
1.37E-01
2.18E-01
3.45E-01
5.99E-02
1.66E-01
1.00E+00
1.40E+01
1.15E+01
8.86E-01

5.00E-01
1.00E+15
5.24E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb40
6.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
6.78E-01
1.32E+00
1.42E+00
8.10E-02
1.07E-01
5.17E-01
5.11E-02
1.24E-01
2.19E-01
3.43E-01
5.33E-02
1.61E-01
1.00E+00
1.42E+01
1.17E+01
7.59E-01
4.00E-01
1.00E+15
5.33E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb30
6.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00

2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
5.77E-01
1.28E+00
1.43E+00
5.60E-02
8.03E-02
4.80E-01
4.49E-02
1.11E-01
2.21E-01
3.40E-01
4.67E-02
1.56E-01
1.00E+00
1.45E+01
1.18E+01
6.33E-01
3.00E-01
1.00E+15
5.42E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb20
6.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
4.73E-01
1.23E+00
1.44E+00
3.30E-02
5.59E-02
4.46E-01
3.86E-02

9.80E-02
2.22E-01
3.38E-01
4.01E-02
1.51E-01
1.00E+00
1.47E+01
1.20E+01
5.06E-01
2.00E-01
1.00E+15
5.51E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb10
6.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
3.64E-01
1.19E+00
1.44E+00
1.50E-02
3.64E-02
4.16E-01
3.23E-02
8.50E-02
2.23E-01
3.35E-01
3.36E-02
1.45E-01
1.00E+00
1.50E+01
1.21E+01
3.79E-01
1.00E-01
1.00E+15
5.59E+03
2.95E+03

1.10E-02
2.40E-02
1.30E-02
InAsSb
12.00E-09
2.00E+22
0.00E+00
1.00E-01
1.00E+00
4.20E-01
1.55E+04
1.00E+00
1.00E+00
3.50E+12
8.00E+00
2.52E-01
1.13E+00
1.43E+00
0.00E+00
2.00E-02
3.90E-01
2.60E-02
7.20E-02
2.24E-01
3.33E-01
2.70E-02
1.40E-01
1.00E+00
1.52E+01
1.23E+01
2.52E-01
0.00E+00
1.00E+15
5.68E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb10
12.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00

8.00E+14
8.00E+14
3.64E-01
1.19E+00
1.44E+00
1.50E-02
3.64E-02
4.16E-01
3.23E-02
8.50E-02
2.23E-01
3.35E-01
3.36E-02
1.45E-01
1.00E+00
1.50E+01
1.21E+01
3.79E-01
1.00E-01
1.00E+15
5.59E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb20
12.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
4.73E-01
1.23E+00
1.44E+00
3.30E-02
5.59E-02
4.46E-01
3.86E-02
9.80E-02
2.22E-01
3.38E-01
4.01E-02

1.51E-01
1.00E+00
1.47E+01
1.20E+01
5.06E-01
2.00E-01
1.00E+15
5.51E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb30
12.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
5.77E-01
1.28E+00
1.43E+00
5.60E-02
8.03E-02
4.80E-01
4.49E-02
1.11E-01
2.21E-01
3.40E-01
4.67E-02
1.56E-01
1.00E+00
1.45E+01
1.18E+01
6.33E-01
3.00E-01
1.00E+15
5.42E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb40

12.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
6.78E-01
1.32E+00
1.42E+00
8.10E-02
1.07E-01
5.17E-01
5.11E-02
1.24E-01
2.19E-01
3.43E-01
5.33E-02
1.61E-01
1.00E+00
1.42E+01
1.17E+01
7.59E-01
4.00E-01
1.00E+15
5.33E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb50
12.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
7.76E-01
1.36E+00

1.41E+00
1.10E-01
1.37E-01
5.57E-01
5.74E-02
1.37E-01
2.18E-01
3.45E-01
5.99E-02
1.66E-01
1.00E+00
1.40E+01
1.15E+01
8.86E-01
5.00E-01
1.00E+15
5.24E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb60
12.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
8.67E-01
1.39E+00
1.40E+00
1.43E-01
1.72E-01
6.02E-01
6.37E-02
1.50E-01
2.17E-01
3.48E-01
6.64E-02
1.72E-01
1.00E+00
1.37E+01
1.14E+01

1.01E+00
6.00E-01
1.00E+15
5.16E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb70
1.01E-07
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
0.96E+00
1.42E+00
1.38E+00
0.18E+00
0.21E+00
0.65E+00
7.00E-02
1.63E-01
2.16E-01
3.50E-01
7.30E-02
1.77E-01
1.00E+00
1.35E+01
1.12E+01
1.14E+00
7.00E-01
1.00E+15
5.07E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb60
6.00E-09
2.00E+22
0.00E+00
2.00E+00

2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
8.67E-01
1.39E+00
1.40E+00
1.43E-01
1.72E-01
6.02E-01
6.37E-02
1.50E-01
2.17E-01
3.48E-01
6.64E-02
1.72E-01
1.00E+00
1.37E+01
1.14E+01
1.01E+00
6.00E-01
1.00E+15
5.16E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb50
6.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
7.76E-01
1.36E+00
1.41E+00
1.10E-01
1.37E-01
5.57E-01

5.74E-02
1.37E-01
2.18E-01
3.45E-01
5.99E-02
1.66E-01
1.00E+00
1.40E+01
1.15E+01
8.86E-01
5.00E-01
1.00E+15
5.24E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb40
6.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
6.78E-01
1.32E+00
1.42E+00
8.10E-02
1.07E-01
5.17E-01
5.11E-02
1.24E-01
2.19E-01
3.43E-01
5.33E-02
1.61E-01
1.00E+00
1.42E+01
1.17E+01
7.59E-01
4.00E-01
1.00E+15
5.33E+03

2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb30
6.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
5.77E-01
1.28E+00
1.43E+00
5.60E-02
8.03E-02
4.80E-01
4.49E-02
1.11E-01
2.21E-01
3.40E-01
4.67E-02
1.56E-01
1.00E+00
1.45E+01
1.18E+01
6.33E-01
3.00E-01
1.00E+15
5.42E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb20
6.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00

3.00E+00
8.00E+14
8.00E+14
4.73E-01
1.23E+00
1.44E+00
3.30E-02
5.59E-02
4.46E-01
3.86E-02
9.80E-02
2.22E-01
3.38E-01
4.01E-02
1.51E-01
1.00E+00
1.47E+01
1.20E+01
5.06E-01
2.00E-01
1.00E+15
5.51E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb10
6.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
3.64E-01
1.19E+00
1.44E+00
1.50E-02
3.64E-02
4.16E-01
3.23E-02
8.50E-02
2.23E-01
3.35E-01

3.36E-02
1.45E-01
1.00E+00
1.50E+01
1.21E+01
3.79E-01
1.00E-01
1.00E+15
5.59E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAsSb
12.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
2.52E-01
1.13E+00
1.43E+00
0.00E+00
2.00E-02
3.90E-01
2.60E-02
7.20E-02
2.24E-01
3.33E-01
2.70E-02
1.40E-01
1.00E+00
1.52E+01
1.23E+01
2.52E-01
0.00E+00
1.00E+15
5.68E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02

InAlAsSb10

12.00E-09

2.00E+22

0.00E+00

2.00E+00

2.80E+00

2.00E+00

1.55E+04

3.00E+00

3.00E+00

8.00E+14

8.00E+14

3.64E-01

1.19E+00

1.44E+00

1.50E-02

3.64E-02

4.16E-01

3.23E-02

8.50E-02

2.23E-01

3.35E-01

3.36E-02

1.45E-01

1.00E+00

1.50E+01

1.21E+01

3.79E-01

1.00E-01

1.00E+15

5.59E+03

2.95E+03

1.10E-02

2.40E-02

1.30E-02

InAlAsSb20

12.00E-09

2.00E+22

0.00E+00

2.00E+00

2.80E+00

2.00E+00

1.55E+04

3.00E+00

3.00E+00

8.00E+14

8.00E+14

4.73E-01

1.23E+00
1.44E+00
3.30E-02
5.59E-02
4.46E-01
3.86E-02
9.80E-02
2.22E-01
3.38E-01
4.01E-02
1.51E-01
1.00E+00
1.47E+01
1.20E+01
5.06E-01
2.00E-01
1.00E+15
5.51E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb30
12.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
5.77E-01
1.28E+00
1.43E+00
5.60E-02
8.03E-02
4.80E-01
4.49E-02
1.11E-01
2.21E-01
3.40E-01
4.67E-02
1.56E-01
1.00E+00
1.45E+01

1.18E+01
6.33E-01
3.00E-01
1.00E+15
5.42E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb40
12.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
6.78E-01
1.32E+00
1.42E+00
8.10E-02
1.07E-01
5.17E-01
5.11E-02
1.24E-01
2.19E-01
3.43E-01
5.33E-02
1.61E-01
1.00E+00
1.42E+01
1.17E+01
7.59E-01
4.00E-01
1.00E+15
5.33E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb50
12.00E-09
2.00E+22
0.00E+00

2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
7.76E-01
1.36E+00
1.41E+00
1.10E-01
1.37E-01
5.57E-01
5.74E-02
1.37E-01
2.18E-01
3.45E-01
5.99E-02
1.66E-01
1.00E+00
1.40E+01
1.15E+01
8.86E-01
5.00E-01
1.00E+15
5.24E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb60
12.00E-09
2.00E+22
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
8.67E-01
1.39E+00
1.40E+00
1.43E-01
1.72E-01

6.02E-01
6.37E-02
1.50E-01
2.17E-01
3.48E-01
6.64E-02
1.72E-01
1.00E+00
1.37E+01
1.14E+01
1.01E+00
6.00E-01
1.00E+15
5.16E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb70
2.01E-07
-1.00E+25
0.00E+00
2.00E+00
2.80E+00
2.00E+00
1.55E+04
3.00E+00
3.00E+00
8.00E+14
8.00E+14
0.96E+00
1.42E+00
1.38E+00
0.18E+00
0.21E+00
0.65E+00
7.00E-02
1.63E-01
2.16E-01
3.50E-01
7.30E-02
1.77E-01
1.00E+00
1.35E+01
1.12E+01
1.14E+00
7.00E-01
1.00E+15

5.07E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
endstructure
end

Homojunction APDs

70% Aluminum

Input File

pin1.prm
tem
300
photonev
1.43
impfac
1
DeltaEg
0.05
I0
10
max_time
1e-8
min_time
1e-17
delta_t
1
Vapp
202
Vinc
2
Vbi
0
max_gain
1000
max_steps
0
stat_bin
1
mode
2
quasi_charge
1
frequency
1e9
DC_current
1.749e-3
structfilename
structpin1.txt
gainfilename
gainpin1.txt
distrfilename
distrpin1.txt

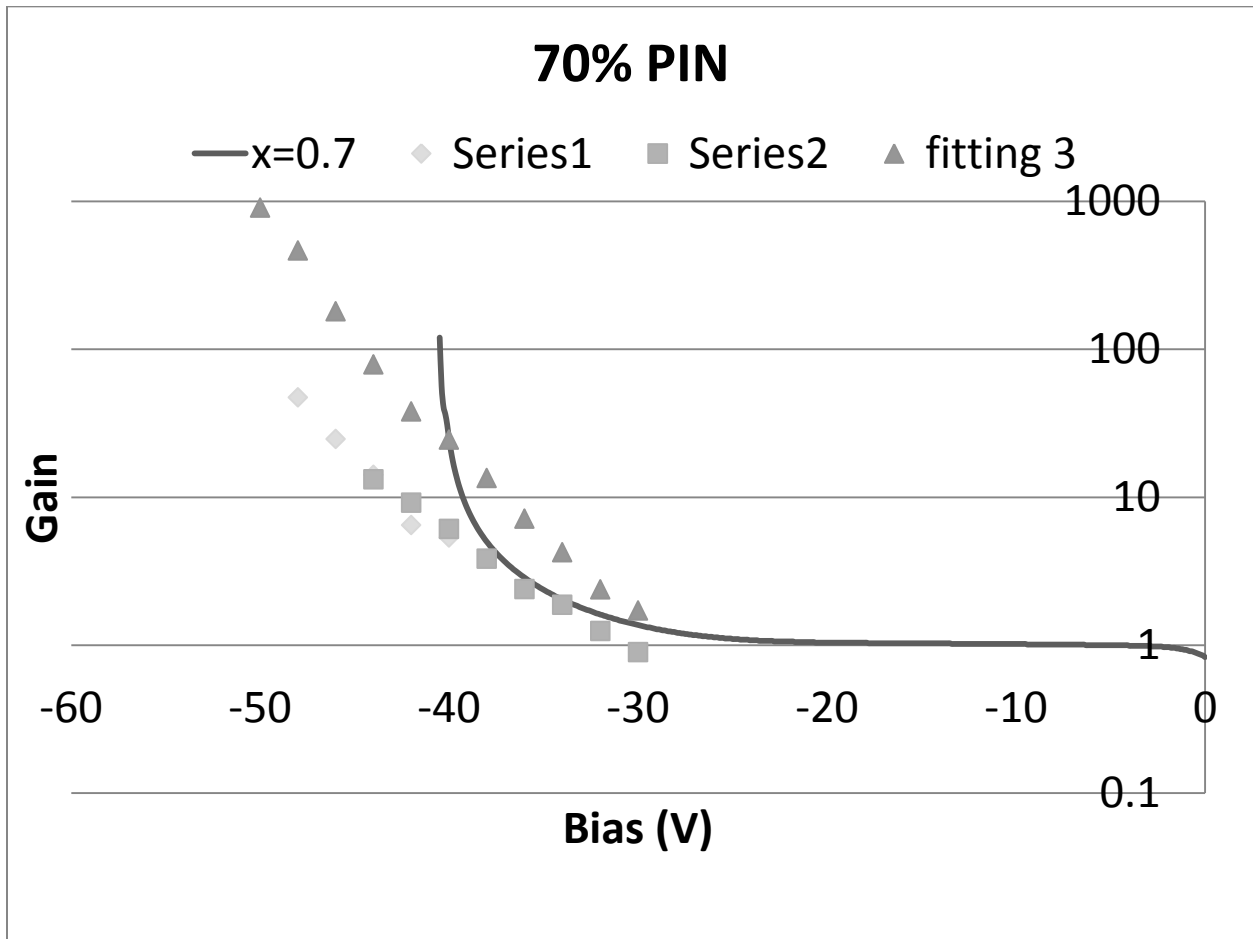
freqfilename
freqpin1.txt
carrierfilename
carrierpin1.txt
swk0filename
swk0inalas190.out
swk1filename
swk1inalas190.out
swk2filename
swk2inalas190.out
swkHfilename
swkHinalas190.out
structure
InAlAsSb70
30.00E-09
1.00E+25
1.00E+08
0.80
3.00
10.00
15500.00
2.00
3.00
4.00E+14
8.00E+08
0.610
1.790
1.640
0.523
0.523
1.170
0.071
0.134
1.290
0.350
0.073
0.177
1.000
15.530
11.700
1.13
0.700
1.00E+15
5.07E+03
2.95E+03
0.011
0.024
0.013

InAlAsSb70
100.00E-09
1.00E+24
1.00E+08
0.8
3.0
10.00
15500.00
2.00
3.00
4.00E+14
8.00E+08
0.610
1.790
1.640
0.523
0.523
1.170
0.071
0.134
1.290
0.350
0.073
0.177
1.000
15.530
11.700
1.13
0.700
1.00E+15
5.07E+03
2.95E+03
0.011
0.024
0.013
InAlAsSb70
890.00E-09
2.00E+22
1.00E+08
0.8
3.0
10.00
15500.00
2.00
3.00
4.00E+14
8.00E+08
0.610

1.790
1.640
0.523
0.523
1.170
0.071
0.134
1.290
0.350
0.073
0.177
1.000
15.530
11.700
1.13
0.700
1.00E+15
5.07E+03
2.95E+03
0.011
0.024
0.013
InAlAsSb70
200.00E-09
-1.00E+24
1.00E+08
0.8
3.0
10.00
15500.00
2.00
3.00
4.00E+14
8.00E+08
0.610
1.790
1.640
0.523
0.523
1.170
0.071
0.134
1.290
0.350
0.073
0.177
1.000
15.530

11.700
1.13
0.700
1.00E+15
5.07E+03
2.95E+03
0.011
0.024
0.013
endstructure
end

Current Fit



60% Aluminum

Input File

pin1.prm
tem
300
photonev
1.80
impfac
1
DeltaEg
0.05
IO
100
max_time
1e-8
min_time
1e-17
Vapp
4
Vinc
2
Vbi
1
max_gain
1000
max_steps
25
stat_bin
1
structfilename
structpin1.txt
gainfilename
gainpin1.txt
distrfilename
distrpin1.txt
freqfilename
freqpin1.txt
carrierfilename
carrierpin1.txt
swk0filename
swk0inalas190.out
swk1filename
swk1inalas190.out
swk2filename
swk2inalas190.out
swkHfilename
swkHinalas190.out

structure

GaSb

30.00E-09

1.00E+25

0.00E+00

0.88

4.00

0.00

2.00

1.00

2.40

5.00E+15

5.00E+15

0.700

0.780

1.000

0.030

0.130

0.830

0.041

0.570

0.870

0.400

0.050

0.140

1.000

15.700

14.400

0.73

0.700

1.00E+15

5.61E+03

3.10E+03

0.001

0.030

0.013

InAlAsSb60

101.1E-09

2.00E+24

0.00E+00

2.00E+00

2.80E+00

1.00E+01

1.55E+04

1.00E+00

3.00E+00

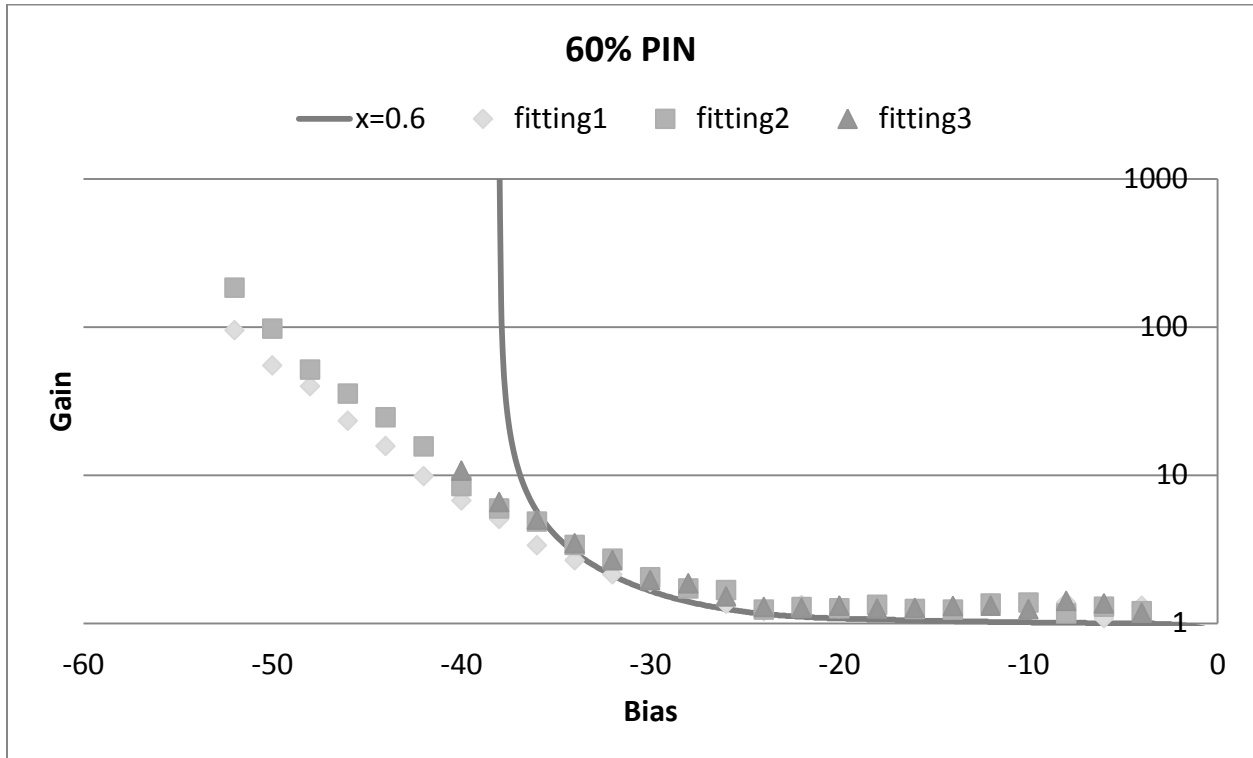
5.00E+13

8.00E+12

5.13E-01
1.72E+00
1.64E+00
4.59E-01
4.78E-01
1.07E+00
6.30E-02
1.25E-01
1.14E+00
3.48E-01
6.61E-02
1.72E-01
1.00E+00
1.55E+01
1.18E+01
1.00E+00
6.00E-01
1.00E+15
5.16E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb60
887.0E-09
2.00E+22
3.00E+08
2.00E+00
2.80E+00
2.00E+00
2.80E+00
2.00E+00
3.00E+00
8.00E+15
8.00E+15
5.13E-01
1.72E+00
1.64E+00
4.59E-01
4.78E-01
1.07E+00
6.30E-02
1.25E-01
1.14E+00
3.48E-01
6.61E-02
1.72E-01
1.00E+00

1.55E+01
1.18E+01
1.00E+00
6.00E-01
1.00E+15
5.16E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
GaSb
200.00E-09
-1.00E+24
0.00E+00
10.00
20.00
10.00
20.00
1.00
2.40
5.00E+15
5.00E+15
0.700
0.780
1.000
0.030
0.130
0.830
0.041
0.570
0.870
0.400
0.050
0.140
1.000
15.700
14.400
0.73
0.700
1.00E+15
5.61E+03
3.10E+03
0.001
0.030
0.013
endstructure
end

Current Fit



50% Aluminum

Input File

pin1.prm
tem
300
photonev
1.43
impfac
1
DeltaEg
0.05
IO
100
max_time
1e-8
min_time
1e-17
Vapp
4
Vinc
2
Vbi
1
max_gain
1000
max_steps
18
stat_bin
1
structfilename
structpin1.txt
gainfilename
gainpin1.txt
distrfilename
distrpin1.txt
freqfilename
freqpin1.txt
carrierfilename
carrierpin1.txt
swk0filename
swk0inalas190.out
swk1filename
swk1inalas190.out
swk2filename
swk2inalas190.out
swkHfilename
swkHinalas190.out

structure

GaSb

30.00E-09

1.00E+25

0.00E+00

0.88

4.00

0.00

2.00

1.00

2.40

5.00E+15

5.00E+15

0.700

0.780

1.000

0.030

0.130

0.830

0.041

0.570

0.870

0.400

0.050

0.140

1.000

15.700

14.400

0.73

0.700

1.00E+15

5.61E+03

3.10E+03

0.001

0.030

0.013

InAlAsSb50

101.1E-09

2.00E+24

0.00E+00

2.00E+00

2.90E+00

1.00E+01

1.55E+04

2.00E+00

3.00E+00

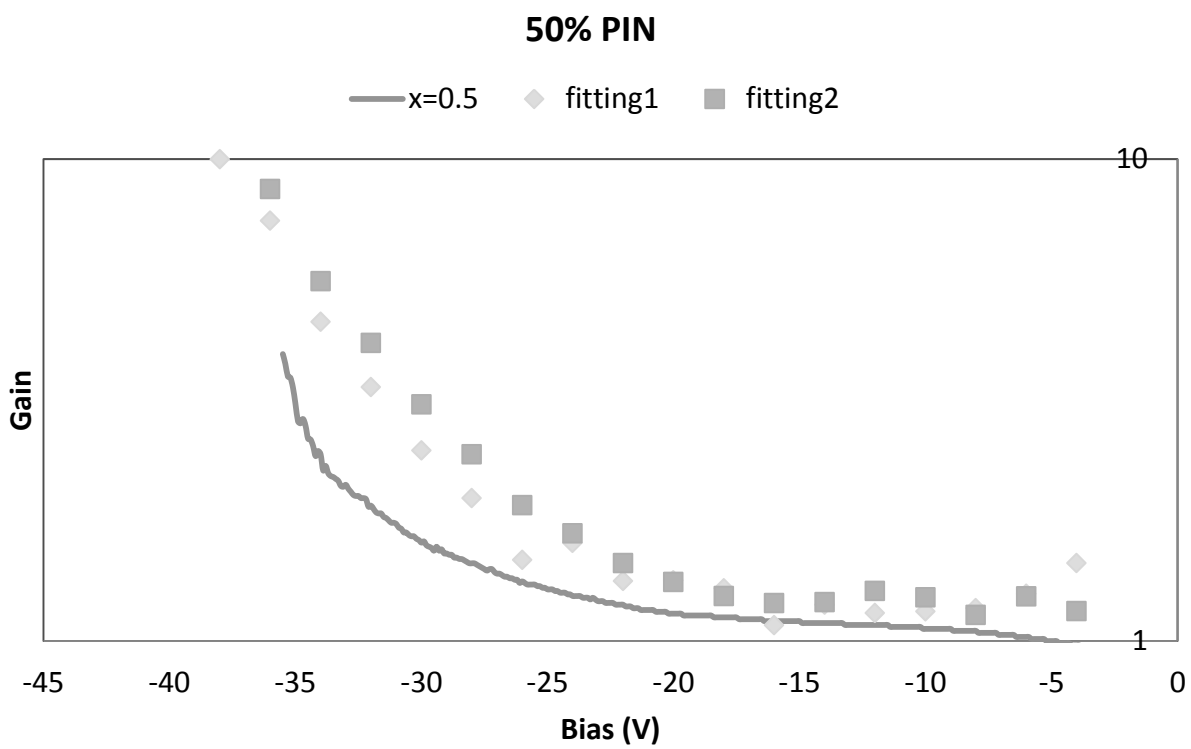
8.00E+14

8.00E+12

4.22E-01
1.66E+00
1.64E+00
4.01E-01
4.33E-01
9.76E-01
5.50E-02
1.16E-01
9.85E-01
3.45E-01
5.93E-02
1.66E-01
1.00E+00
1.55E+01
1.20E+01
8.76E-01
5.00E-01
1.00E+15
5.24E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb50
887.0E-09
2.00E+22
3.00E+08
2.00E+00
2.90E+00
1.00E+01
1.55E+04
2.00E+00
3.00E+00
8.00E+14
8.00E+12
4.21E-01
1.66E+00
1.64E+00
4.01E-01
4.33E-01
9.76E-01
5.50E-02
1.16E-01
9.85E-01
3.45E-01
5.93E-02
1.66E-01
1.00E+00

1.55E+01
1.20E+01
8.76E-01
5.00E-01
1.00E+15
5.24E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
GaSb
200.00E-09
-1.00E+24
0.00E+00
10.00
20.00
10.00
20.00
1.00
2.40
5.00E+15
5.00E+15
0.700
0.780
1.000
0.030
0.130
0.830
0.041
0.570
0.870
0.400
0.050
0.140
1.000
15.700
14.400
0.73
0.700
1.00E+15
5.61E+03
3.10E+03
0.001
0.030
0.013
endstructure
end

Current Fit



40% Aluminum

Input File

pin1.prm
tem
300
photonev
1.43
impfac
1
DeltaEg
0.05
IO
100
max_time
1e-8
min_time
1e-17
Vapp
2
Vinc
2
Vbi
1
max_gain
1000
max_steps
17
stat_bin
1
structfilename
structpin1.txt
gainfilename
gainpin1.txt
distrfilename
distrpin1.txt
freqfilename
freqpin1.txt
carrierfilename
carrierpin1.txt
swk0filename
swk0inalas190.out
swk1filename
swk1inalas190.out
swk2filename
swk2inalas190.out
swkHfilename
swkHinalas190.out

structure

GaSb

30.00E-09

1.00E+25

0.00E+00

0.88

4.00

0.00

2.00

1.00

2.40

5.00E+15

5.00E+15

0.700

0.780

1.000

0.030

0.130

0.830

0.041

0.570

0.870

0.400

0.050

0.140

1.000

15.700

14.400

0.73

0.700

1.00E+15

5.61E+03

3.10E+03

0.001

0.030

0.013

InAlAsSb40

101.1E-09

2.00E+24

0.00E+00

2.00E+00

2.80E+00

1.00E+01

1.55E+04

1.00E+00

3.00E+00

5.00E+13

8.00E+12

3.36E-01
1.59E+00
1.64E+00
3.48E-01
3.89E-01
8.79E-01
4.70E-02
1.07E-01
8.33E-01
3.43E-01
5.24E-02
1.61E-01
1.00E+00
1.54E+01
1.21E+01
7.49E-01
4.00E-01
1.00E+15
5.33E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
InAlAsSb40
887.01E-09
2.00E+22
3.00E+08
2.00E+00
2.80E+00
1.00E+01
1.55E+04
1.00E+00
3.00E+00
8.00E+14
8.00E+12
3.36E-01
1.59E+00
1.64E+00
3.48E-01
3.89E-01
8.79E-01
4.70E-02
1.07E-01
8.33E-01
3.43E-01
5.24E-02
1.61E-01
1.00E+00

1.54E+01
1.21E+01
7.49E-01
4.00E-01
1.00E+15
5.33E+03
2.95E+03
1.10E-02
2.40E-02
1.30E-02
GaSb
200.00E-09
-1.00E+24
0.00E+00
10.00
20.00
10.00
20.00
1.00
2.40
5.00E+15
5.00E+15
0.700
0.780
1.000
0.030
0.130
0.830
0.041
0.570
0.870
0.400
0.050
0.140
1.000
15.700
14.400
0.73
0.700
1.00E+15
5.61E+03
3.10E+03
0.001
0.030
0.013
endstructure
end

Current Fit

